Electronic Records & Operating System (EROS) Demonstration

Welcome to the EROS Demo. Here, we aim to show the level of interactivity that can be achieved with our electronic manuals. Simply follow the on-screen instructions.

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Mechanical Services Operating & Maintenance Manual

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SECTION FOUR

SYSTEM DESCRIPTIONS

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4.1 LTHW HEATING INSTALLATION

4.1.1 System Description

The heating system comprises of two gas fired atmospheric boilers (Ref. **B1** and **B2**) located in the Basement Plantroom.

From each boiler a twin wall stainless steel flue rises to discharge through the First Floor roof level via the service duct.

From the boilers a pipework distribution system, variable temperature circuits serve the various aspects of the new and existing building.

The circuits run to serve new radiators and finned tube elements in the new extension and to connect to the existing heating circuits in the retained existing areas.

The primary circuit is fitted with duplicate pumps to operate as run and standby, the secondary heating circuits are fitted with single head pumps for duty operation only.

(a) **P1A** - Primary Constant Temperature

(b) **P1B** - Primary Constant Temperature

(c) **P2** - Variable Temperature – North/East

(d) **P3** - Variable Temperature – West

(e) **P4** - Underfloor Heating

(f) **P5** - Variable Temperature – South/Lecture Theatre

The heating system is of the sealed type system via an automatic pressurisation unit (Ref. **PU1**) with expansion vessel to maintain a constant system pressure.

Generally the heating pipework is concealed with ceiling voids or ducts.

All pipework is thermally insulated where not being used as a useful heating medium.

Each radiator, finned tube element is fitted with a thermostatic radiator valve on the flow and Lockshield isolation on the return.

The lower and upper Mezzanine/stair area has been fitted with an underfloor heating system.

The manifold for the heating pipework is located at Ground Floor level at the top of the stairs which go down into the Basement. The underfloor heating is fed from a dedicated circuit on the heating system via the underfloor heating manifolds.

PRIMARY LTHW PUMPS P1A & P1B

EQUIPMENT SCHEDULE

COMMISSIONING RESULTS

SCHEMATIC

BACK TO SYSTEM DESCRIPTION

5.3 CIRCULATION PUMPS

CIRCULATION PUMP SCHEDULE

Manufacturer:	Pump Manufacturers Ltd
	Factory No 1,Random Industrial Estate
	Hometown, Countyshire
	ZZ14 2WJ
Telephone:	01111 123456
Fax:	01111 987654
Location:	Basement Plantroom

Ref	Circuit	Flow (L/s)	P/Drop (kPa)	Connection (mm)	Motor (kW)	Model
P1A	Primary CT	5	94	65	415/3/50 1.1	TOP-S 65/13
P1B	Primary CT	5	94	65	415/3/50 1.1	TOP-S 65/13
P2	North/East VT	1.04	80	40	240/1/50 0.35	TOP-E 40/1-10
P3	West VT	1.66	90	50	240/1/50 0.45	TOP-E 50/1-10
P4	Underfloor Htg	0.30	56	25	240/1/50 0.49	TOP-E 25/1-7
P5	South/Lecture Theatre VT	1.68	80	50	240/1/50 0.45	TOP-E 50/1-10

Refer to manufacturer's literature, Section 16, Sub-section	16.7

Note: (1) All pumps complete with plug in modules for BMS interface.

(2) All pumps complete with flexible connections.

Project: Random Building No. 1.....

System: LTHW Primary..... **Date:** 23-09-02 ...

Sheet No W3/ 1 of 1
Authorized by:
Issue No.....2.....Dated....18/01/94...

Pump Test Sheet

Pump Details				
Manufacturer	PUMP MANUFACTURERS	Type	CENTRIFUGAL	
Model	TOP-S/65-13	Serial Number	OD5211B63	0075-2401

Motor Details			OD5211B63 0068-1801
Manufacturer	PUMP MANUFACTURERS	Serial No	81902608
Rating	2.2 kW	Frame Size	LARGE
Speed	1415 rpm	Full Load Current	5.0 amps
Starter Type	D.O.L	Electrical Supply	415 V/ 3 ph
Fuse Size	C.O.C.B amps	Overload Range	4.5-6.3 amps
Timer Setting	N/A s	Overload Setting	5.0 amps

Drive Details	DIRECT DRIVE		
Pump Pulley	- mm dia	Motor Pulley	- mm dia
Pump Taperlock	- mm shaft	Motor Taperlock	- mm shaft
Belt Size	-	Number of Belts	-

Test Data

	Design	**Pump No 1**	**Pump No 2**
Running Current		R 4.15 amps Y 4.6 amps B 4.3 amps	R 4.4 amps Y 4.6 amps B 4.5 amps
Suction Head		N/M kPa	N/M kPa
Delivery Head		N/M kPa	N/M kPa
Pump Head	65 kPa	54 kPa	54 kPa
Motor Speed	1415 rpm	1438 rpm	1435 rpm
Pump Speed	1420 rpm	1438 rpm	1435 rpm
Flow Rate	24.0 l/s	24.0 l/s	24.0 l/s
% Design Flow Rate		100 %	100 %

*Flowrate derived by: CS1

C.O.C.B= Combined Overload/Circuit Breaker

Tested by:

A.N.ENGINEER ..... **Engineer**

for and on behalf of: M & E Co Ltd.....

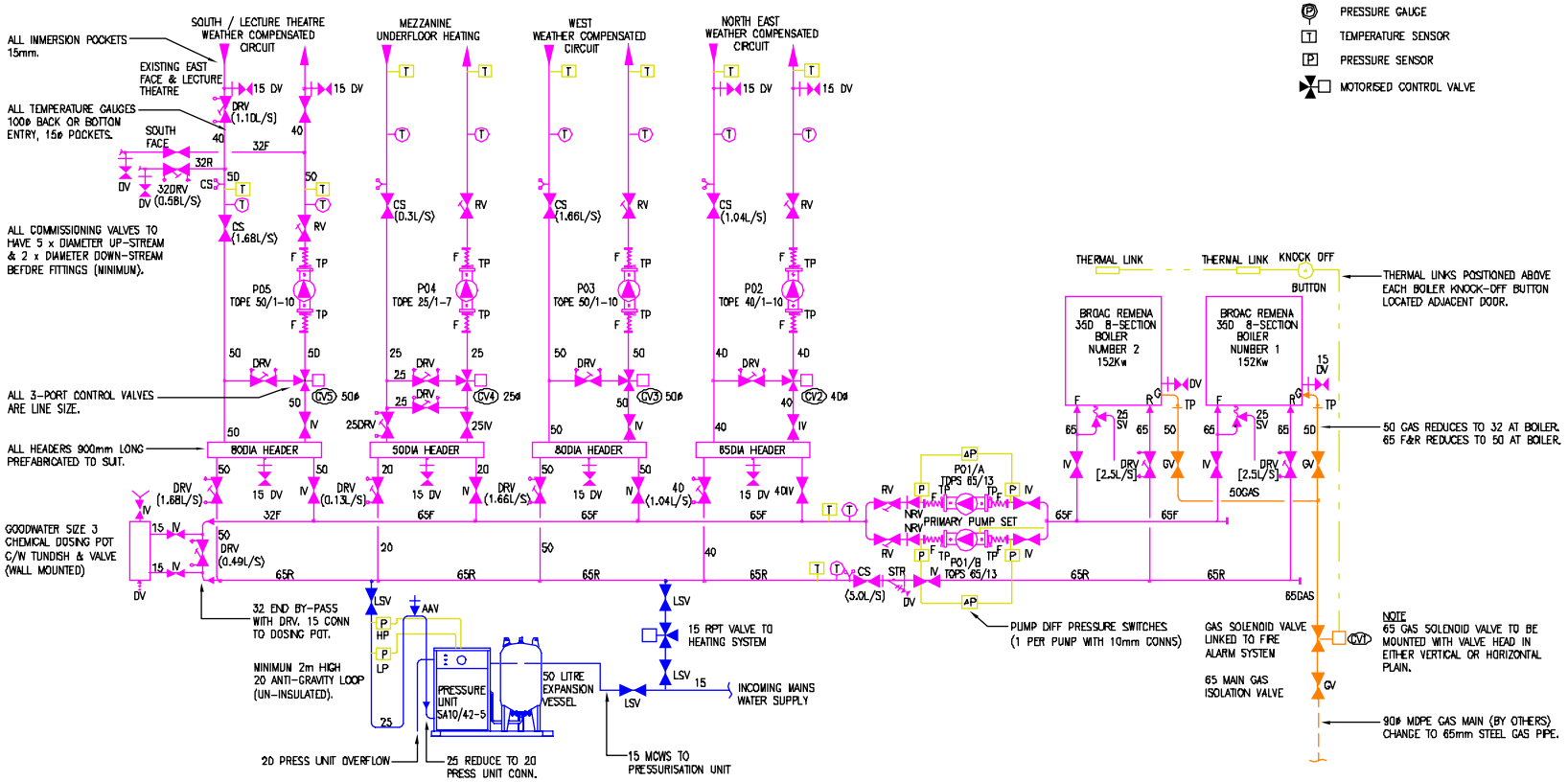
Witnessed by:

..... **Engineer**

for and on behalf of .....

COMMISSIONING ENGINEERS LIMITED

Tel: (029) 1234 5678 Fax: (029) 9876 5432



LEGEND

- ISOLATING VALVE
- GAS VALVE
- LOCKSHIELD VALVE
- REGULATING VALVE
- DOUBLE REGULATING VALVE
- COMMISSIONING SET
- TEST POINT
- DRAIN VALVE
- SAFETY VALVE
- STRAINER
- NON RETURN VALVE
- FLEXIBLE COUPLING
- AUTOMATIC AIR VENT
- TEMPERATURE GAUGE
- PRESSURE GAUGE
- TEMPERATURE SENSOR
- PRESSURE SENSOR
- MOTORISED CONTROL VALVE

ULE

PO1/A&B – TYPE TOP-S 85/13 CONNECTIONS 65mm FLANGED PN 6

PO2 – TYPE TOP-E 40/1-10 CONNECTIONS 40mm FLANGED PN 6

PO3 – TYPE TOP-E 50/1-10 CONNECTIONS 50mm FLANGED PN 6

PO4 – TYPE TOP-E 25/1-7 CONNECTIONS 25mm 40mm BSP

PO5 – TYPE TOP-E 50/1-10 CONNECTIONS 50mm FLANGED PN 6

NOTE – ALL PUMPS WITH FLEXIBLE CONNECTIONS AND ¾" BSP SELF SEAL TEST PLUGS MOUNTED ON PUMPS.

BOILER SCHEDULE

2No. BORAC REMENA 35D B-SECTION
DIMENSIONS 1040W x 1180H x 1080D
CONNECTIONS 50mm FLOW & RETURN, 32mm GAS & 250mm FLUE

PRESSURISATION UNIT

PRESSMAIN TYPE SPILLBACK SA 10/42-5
FULLY PACKAGED RUN/STANDBY PUMP
ON BASE PLATE.
SIZE 630W x 1000L x 1310 OVERALL
CONNECTIONS 15mm BSP TO BALLVALVE & 20mm BSP TO SYSTEM

AS INSTALLED