

## ***System Overview***

Metered Natural Gas Services are provided to the serve the Boiler and CHP (Combined Heat & Power) Heating Plant within the CHP and Boiler Plantrooms, the Hotel, retail units, apartments, the Gym, and the Cinema.

Manually operated Emergency Control Valves (ECVs) are provided at the meters and at the intake to each space served.

The CHP and Boiler supplies are provided with BMS interlocked automatic Gas Safety System, which will isolate the incoming supply to area in the event of an emergency.

## ***System Description***

The building is provided with 2 No incoming Natural Gas Supply as indicated on the Gas Schematic.

One gas supply is provided from the supply company's network in Redan Place and serves the meters Gas Utility Meters within the Zone 3 Gas Meter Room. Supplies are taken from the meters to serve the apartments, Hotel and a Retail Unit as indicated on the schematic.

The other gas supply is provided from the supply company's network in Porchester Gardens and serves the Gas Utility Meters within the Zone 2 Gas Meter Room. Supplies are taken from the meters to serve the apartments, retail units, Boiler Room, Cinema and Gym as indicated on the schematic. The gas supply to the gas utility meter serving the Boiler Room is routed via a filter as indicated.

Each gas supply is to the utility meters provided with an isolation valve and a gas governor valve. Supplies from the utility meters are routed via ECVs (Emergency Control Valves) and terminate at AEVCs (Alternative Emergency Control Valves) in the areas served.

All gas solenoid valves are connected to the fire alarm system, all valves shut down on alarm then have to be manually reset.

Within the Boiler Room, the Natural Gas Service are split into 2 No branches to serve the Boilers and the CHPs (Combined Heat & Power Units) as indicated on the schematic drawings.

The Boilers are served via a GSV (Gas Solenoid Valve).

The CHPs are served via a packaged Gas Booster Set which is automatically controlled via the BMS and is set to operate on duty/standby basis. From the Gas Booster Set the Boosted Natural Gas Service serves the CHP via a GSV (Gas Solenoid Valve) and secondary meter.

The GSVs are interlocked faced with the BMS safety circuits as detailed further with in the BMS Description of Operation. Refer to the [Metering Monitoring and Management Systems](#) for further information.

The Natural Gas Service is routed via the necessary isolation and service valves as indicated on the schematic.

The system was commissioned on completion. The commissioning documents can be found in the Testing and Commissioning Section of this Manual.

## ***Operation***

The operations provided in this Section are guidelines aimed at trained & competent persons only. For items of specific equipment, always refer to the manufacturer's literature in the first instance.

### **Start Up Procedures**

- Ensure power supplies to all equipment are on, valves set to the correct position, EPO's buttons rest and control panels denote a healthy condition.
- Refer to the Manufacturer's pre-start instructions for each item of equipment. The equipment manufacturers O&M manuals are located with the equipment schedules.
- Open Main Gas Stopcock.
- Open the branch isolation valve.
- Open isolation valve to each appliance.

### **Normal Operation**

- The System is fully automatic in its operation.

### **Shut Down Procedures**

- For local isolation, close the relevant stopcock to each appliance.
- For Branch, close the relevant branch isolation valve.
- For full isolation, close the Main Gas Stopcock

### **Emergency Operation**

- The emergency shut off button within the Plantroom will isolate the incoming gas supply to that area.
- In the event of a gas leak:
  - Shut off all gas appliances and the main gas supply.
  - Impose a no smoking ban in the gas leak area and adjacent areas - A potentially explosive situation could exist.
  - Shut down all plant which could generate a spark (e.g. fan motors).
  - Ventilate as much as possible the area affected by the leak
  - Locate the leak by pressurising the gas main or local pipework with nitrogen or another similar inert gas and testing with a brush and soapy water solution around the suspected area of the leak (e.g. fittings, gas cocks) - Do not pressurise with air as this will result in a highly explosive situation. Always use an inert gas.
  - When located, repair the leak.
  - When repaired, the gas line should be purged with nitrogen - Check at all draw offs for satisfactory purging.

- Turn on the gas supply.
  - Purge the nitrogen from the mains - Check that gas is available at all draw offs.
- On failure of the Gas Supply
  - Turn off main gas cock at the incoming main.
  - Shut down all gas fired plant.
  - Inform gas supplier of failure.
  - On resumption of gas supply, check that all appliances and plant served are switched off prior to opening main gas cock and energising electrical supply to the gas solenoid.
  - Re energise items of mechanical plant.
  - NOTE: If this procedure is not adhered to there is a chance of a gas leak due to an appliance in operation at the time of the failure not being switched off. This could have drastic and dangerous consequences and it is therefore imperative that this procedure, although short, is followed.