

## **LPHW Heating System**

Low temperature hot water (LTHW) heating will be provided to the building using two gas fired condensing boilers as the primary heat source sized at 66% of the overall building load.

Hamworthy Varmax 600 floor standing boilers will be used to generate the heat, the boilers are low NO<sub>x</sub>, generating up to 96% gross seasonal efficiency with a 5:1 turn down ratio.

The boilers will operate as the heat source to serve a single constant (CT) pumped heating circuit producing heating at 80/60° flow and return temperatures that will serve a system of radiators, radiant panels, and heating coils throughout the building.

Single heating primary circuit shunt pumps will be controlled to ensure that sufficient water flow is always circulated through the boilers to the building.

The building will be zoned on an individual floor level basis and configured to allow out of hours use for the building to the Sports Hall and Changing Rooms, and the Community Area of the building through local control valves monitored and controlled through the BMS.

Each radiator will be supplied with a pressure independent thermostatic radiator valve (PITRV) on the flow connection and matching isolation valve on the return connection.

Radiant panels will be supplied with a pressure independent control valve (PICV) on the flow connection and an isolation valve on the return connection.

In teaching spaces, the hybrid ventilation units will be fitted with individual heating coils. The CT heating circuit will extend to serve each unit with local temperature control through the ventilation unit controller located in each classroom.

The CT circuit will be extended to provide heating frost and heating coils within the air handling units. Three port control valves at each coil will control LTHW flow through the coils to maintain the off-coil design air temperature.

The heating system will be maintained under positive pressure by means of packaged pressurisation units with duty and standby pumps.

Conventional twin wall stainless steel open flues will discharge the products of combustion to atmosphere above roof level from the gas fired boiler. Mechanical ventilation will be provided for make- up and combustion air purposes via high and low-level louvres in the external plant room wall.

The entire heating system will operate under the dictates of the BMS to control operational times, temperature control and frost protection.