



NEW ABERDEEN COUNCIL HQ SAVES ENERGY WITH PRIVA BMS TECHNOLOGY

Aberdeen City Council's recent relocation to Marischal College on Broad Street is a landmark development for many reasons. Predominantly, this is because the council's new corporate headquarters is a showcase project for sustainability, one that features Priva BMS technology at its core.

- > **Minimized building's energy demand**

- > **Monitoring energy, ventilation and heating**

Occupying an imposing position that commands the Aberdeen skyline, Marischal College has origins dating back to 1593. The current structure is around a century old and is in fact the world's second largest granite building behind only 'The Escorial' in Madrid, making it the ultimate symbol of the 'Granite City'. But the council's relocation is about far more than mere prestige or having nice new offices, it centres on environmental responsibility and the opportunity to utilise renewable energy.

Energy capital of Europe

The previous headquarters at St Nicholas House was constructed in 1966 with a 30-year lifespan and did not harbour a future for the council. Furthermore, compared with redevelopment of St Nicholas House, new construction on a green-field site or Marischal College, the latter provided the best-value option, as well as adding weight to the city's ambition of becoming "the energy capital of Europe into the future". This groundbreaking project paves the way for the renewal of the city centre, the creation of a new civic focal point and brings back into use a building that has been lying vacant for some years.

The £68 million scheme required the demolition of the interior of the building and the creation of 174,000 sq ft of modern office space over four floors for up to 1,300 council staff. All granite elevations of the building were retained.

The tender issued by the appointed team of architects engaged consulting engineers, Wallace Whittle of Glasgow, which had the responsibility of designing the internal building services complete with woodchip-fuelled, biomass-served, environmentally sustainable heating system. However, as one of the UK's most northerly cities, Aberdeen is notorious for its harsh climate on the shores of the North Sea. With this in mind, suitable back-up for the biomass boiler was required, and here Wallace Whittle turned to Priva partner, Campbell Control Services, a specialist in automatic building control systems.

Boiler-house controls

Two back-up gas boilers were deployed to support the biomass system in the event of a fault or empty fuel situation. Both boiler-houses located on the lower ground floor feature panels with Priva Compris HX8E BMS controllers their heart, as well as touch-screen display, U18 universal input modules, DI12S digital input modules and RO6MS digital input/relay output modules.

The boilers are arranged to operate in a step-controlled manner to achieve the required boiler return temperature, with the set point available to the operator via the Priva BMS. When required, the boilers are sequenced on a 'first on/last off' basis. This provides a continuously rotating boiler sequence, ensuring the boiler modules have equal duty operation.

Heating and Cooling

The integration of Priva technology at Marischal College extends far beyond control panels for back-up gas boilers.

For example, the heating and cooling of the building is provided by individual ceiling-mounted water source heat pumps which integrate with the Priva system for time/temperature control. Priva's Compris HX4's aid the supply and regulation of water to these pumps, populating 16 control panels located across all floors. Each heat pump has the capability of transferring excess heat to cooler parts of the building. This helps minimize the building total energy demand. In addition, the main heat rejection plant which consists of adiabatic coolers - thus maximizing cooling by fresh air - are also monitored and controlled by the Priva system.

Priva Throughout

The Priva system oversees many additional control functions including the monitoring and control of various air handling units and ancillary ventilation plant across the building. It also provides monitoring of the MCCB status on the main and south switchboards. In total, more than 9000 integration points are associated with this project, controlling a long list of plant such as: 643 fan coil units, domestic hot water system, roof-located air handling units for ventilation and WC extraction ventilation. Input and output status is provided either via Modbus or BACnet networks to the Priva controllers.

Roof-located riser control panels also feature Priva HX4 technology, as do the control panels for the building's meeting room and main communications room.

Incoming electricity, gas and water metering is also monitored by Priva BMS technology, while in terms of alarm and status monitoring, the BMS software will send a text or email to the nominated maintenance engineer. Campbell Controls supplied a desktop PC and software package called TC Vision to allow interrogation/alterations of all the Priva controlled plant from one central point located in FM room. Priva's TC Vision software has access - read and/or write - to all 9000+ BACNet and Modbus integration points. This can be carried out via any desktop PC within the building's intranet system, or remotely via an internet connection.