An energy-intelligent building makes for a pleasant workspace

The office wing at the rear of the Town Hall, known as The Annex, was constructed in 1962, and left a lot to be desired in terms of its energy efficiency. The workspace was also very unappealing. When it came time to refit the Annex we wanted not only to reduce its energy consumption but also to smarten up its appearance and make it a more comfortable and pleasant place in which to work. Through refurbishment we've reduced the building's energy use by 60 per cent.

A whole-building approach

The Annex comprises a three-storey office structure raised above a street level podium with a basement car park. There were a lot of areas throughout the building that needed attention, and there were quite a few surprises in store for us when it came time to make it ready for the proposed refit and environmental systems upgrade. Some parts weren't at the standard we'd expected and a significant amount of reconstruction was required.

The Annex is now fully insulated. The windows have been glazed with low-glare comfort glass, they can be opened, and they have external sunshades. During the works we also upgraded the elevator car interior and installed modern switch gear. Low-energy, high-efficiency, low-glare light fittings with timers and movement sensors were fitted throughout the work spaces.

The sophisticated new heat exchange system uses treated effluent to provide energy input and heat rejection as required. Unlike with a traditional, totally controlled, sealed air conditioning system our new system effectively breathes fresh air; if the outside climate changes the inside air will change too. It never gets too cold nor too hot, but the temperature range is slightly wider than that of a conventional system. It's more natural. For very cold mornings each workstation has a low-wattage heater on a time-delay to ward off the chill.

The Annex is now metered for energy use, and we can also monitor the temperature in various parts of the building to ensure that it is operating as it should.

Communicating the change – a low-impact approach works well

We pretty much let our staff decide how they want to control the climate in their workspace. Apart from sending some emails explaining how the new system works, it was fairly obvious to everyone that they now had more control over their immediate area, and that the building would not be kept at the same temperature all day in the way a conventional air conditioning system allows. Feedback suggests that everyone is extremely comfortable with our new system.
An in-house project

Preliminary design work was done by the Council team in Architectural Projects, and peer assessment was used to ensure maximum efficiency with the minimum of waste. The cost of the project was slightly higher than we'd hoped but within the acceptable range; when we learned what was possible we opted for the best solutions and latest technology.

If we started this project again we'd take advantage of the recent advances in lighting technology, but in the main we did as much as our budget could sustain. More work would have come at a cost but without such significant reduction in energy use. Renovating an existing building will always be a compromise over constructing a custom designed building incorporating the latest knowledge and technologies, but there is the advantage of the significant carbon credit provided by reusing the existing building fabric. We now plan to apply the things we learned from upgrading The Annex to other council buildings.