

Case Study



> Yorkshire Building Society

The Yorkshire Building Society is the fourth largest building society in the UK, with 1.8 million members, assets of £16.3 billion and more than 130 branches across the UK. Priding itself on being one of the most cost-efficient building societies in the industry with an on-going commitment to the environment, the Society is counteracting increasing heat loads and rising fuel costs with Airedale's advanced free-cooling technology, to provide reliable, low energy cooling for its call centre offices.



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Yorkshire Building Society – Cooling Requirements

Based in Bradford, West Yorkshire, the Yorkshire Building Society's head office and main call centre are part of two purpose-built £40 million developments, employing over 1000 people. Representing £10 million of this investment, the call centre accommodates workstations for 300 staff; refreshment and staff comfort zones and a data centre cooled by two AlphaCool close control units. Spread over four floors, the 3,200 m² of operational space in this sealed building is now fully utilised, with people and computers creating a high heat gain. In this business critical application, calls are constantly received from branches, investors and borrowers twelve hours a day, six days a week. During this time, continuous operation is crucial.

As a mutual organisation, the Yorkshire Building Society is run for the benefit of its members. With one of the lowest facility management expense ratios in the building society sector, the Society is committed to keeping building energy costs down whilst reducing its impact on the environment.

Design Criteria

With the call centre at full capacity, an existing, standard chiller was unable to cope with the increasing heat load and maintain temperatures at the required 23°C setpoint, leading to uncomfortable working conditions for the staff. New free-cooling technology available from Airedale has led Yorkshire Building Society management to replace the existing chiller with an Airedale free-cooling system that would expand cooling capability whilst significantly cutting energy costs.

Yorkshire Building Society Premises Engineer Steven Ward wrote the specification based on Airedale's Ultima FreeCool chiller (UFC): "Quality was important but energy efficiency was the crucial factor and Airedale proved that its free-cooling chiller can save energy and is the right system for us. The initial purchase price is far outweighed by the savings we can make on running costs. Anything that improves payback is of interest to the Society. We have also had good service from other Airedale products."

End User Specification

- > One Ultima FreeCool 500kW dual-circuit chiller equipped with intelligent AireTronix controls

Linked to key components, the AireTronix controls allow the UFC to be remotely monitored by the Society's Trend BMS. Two screw compressors, allowing six stages of cooling, and electronic expansion valve (EEV) technology combine to improve part load efficiencies and investment payback.

Adds Steven Ward: "We lacked space for two chillers as run and stand-by, but the UFC allows us to have one chiller with twin refrigeration circuits, giving us a complete separate system as a back-up."

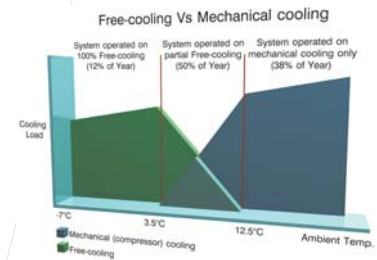
Free-cooling Cuts Energy Costs and Carbon Emissions

Airedale engineers worked with the Yorkshire Building Society on the design of a low energy solution based on the UFC's free-cooling capability. At Airedale's test centre, an extensive energy cost analysis was carried out with the Society's engineers. Compared with a standard chiller operating only in mechanical cooling mode, Airedale's UFC consumes typically 35% less energy than that of a conventional air-cooled liquid chiller.*

* Based on Met. Office figures for London, UK



The UFC uses a free-cooling cycle to reduce the need for mechanical cooling, giving priority to free-cooling as soon as the ambient temperature is 1°C less than the return water. In the evenings when the call centre is open until 8pm and ambient temperatures are lower, energy consumption can be reduced further. During the coldest part of the year, free-cooling can totally satisfy the cooling load, saving energy otherwise used in the mechanical operation of the compressors, evaporator and fans. For maximum energy saving the UFC can operate on simultaneous mechanical and free-cooling for up to 50% of the year and only needs to operate completely on mechanical cooling for about 38% of the year.



Critical Installation Schedule

To avoid sustaining any interruption to its core business, the Society stipulated a tight, 3-day installation schedule for the old chiller to be extracted, involving temporary removal of structural steelwork, and the new chiller to be installed. Airedale's UFC was delivered promptly and installers Mitton Mechanical Services of Bradford carried out the lifting operation and installation. Despite high winds, the new chiller was in place, commissioned and maintaining room conditions, when the call centre reopened for business.



AlphaCool for Precision Cooling

Ideal for the small control tolerance environment of the data centre, the two AlphaCool units maintain precise temperature and humidity control of the space. Designed in a fully-configured package to be quiet and easy to install, the AlphaCool is available in DX and chilled water variants and features 8kW to 110kW cooling capacity; downflow/upflow options and EEV and scroll compressor technology. Sleek, modular design for side-by-side installation can facilitate multi-circuit functionality and run / standby operation.



Planned Maintenance Improves Payback

Keen on using an equipment manufacturer's own service team and, satisfied with the way Airedale Service engineers have looked after the two AlphaCool close control units, the Society has had no hesitation in awarding Airedale the contract to maintain the two Ultima chillers with the same quality, 24/7 call-out service. Planned maintenance not only helps prevent breakdowns, but improves energy efficiency particularly by keeping a system at its optimum setpoint. The benefits for the Society are reduced running costs, improved payback and potentially longer life and for the environment, less carbon emissions.

Energy Technology List

The Yorkshire Building Society can also benefit from the inclusion of the UFC on the Energy Technology List due to the chiller's proven energy efficient performance. Under the Enhanced Capital Allowance scheme, businesses investing in energy saving products published in the approved List can claim 100% first-year capital allowances on their spending.

For details contact Airedale on +44 (0)113 239 1000 or enquiries@airedale.com



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