



Science & Technology
Facilities Council

Case study

Science & Technology Facilities Council

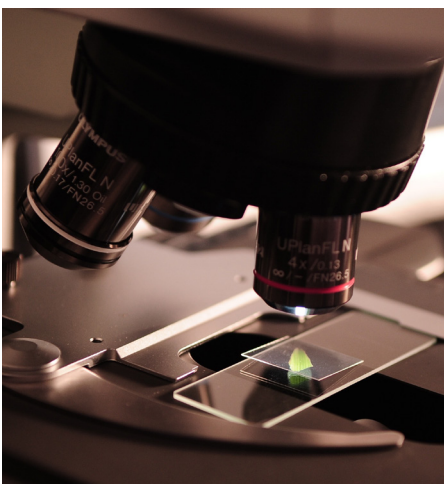
About

Location: Didcot, UK

Value: £500K+

Duration: 6 months

The Science & Technology Facilities Council are a world-leading multi-disciplinary science organisation with a mission to deliver economic, societal, scientific and International benefits to the UK and the rest of the world and its people.



The world class facilities help support circa 1,700 Particle Physicists, Nuclear Physicists and Astronomers from more than 50 Universities and academic research institutes in the UK, Europe, Japan and the United States, and the facilities welcome 3,500 users each year that carry out more than 2,000 experiments.

The Brief

The Science & Technology Facilities Council were installing a number of High Density (HD) servers at their site in Didcot. As a result, they required a HD cooling solution to achieve optimum conditions within their facility, whilst achieving industry leading energy efficiency.

The Project

Sudlows recommended that the ideal solution for the brief, provided by the client, was to install a number of 20-30kW rear door coolers and a 390kW Coolant Distribution Unit (CDU).

Sudlows began by connecting off 2No. existing 80mm valved chilled water flow and return connections, located on each side of the Data Hall and connecting a replacement 100mm stainless steel flow and return header on each side.

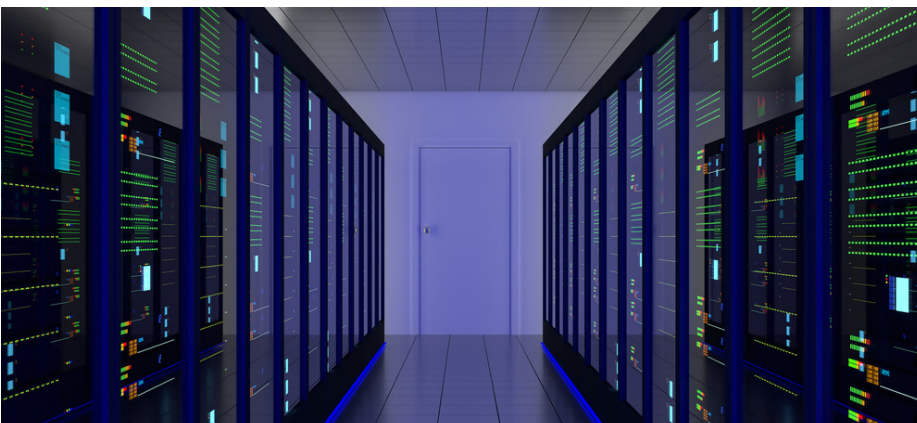


The CDU's contain a heat exchanger that transitions from room chilled water to a warmer, secondary chilled water supply that feeds into the rear door coolers. The benefit of this system is that no condensation can occur in the rear door coils, as the air is always kept above dewpoint.



Additionally, each rear door cooler has its own microprocessor controller that ensures that the system is "passive" i.e. the temperature leaving the rack through the coil is the same as the temperature entering the rack. This means that all heat energy is absorbed by the rear door cooler and adds no additional load to the room.

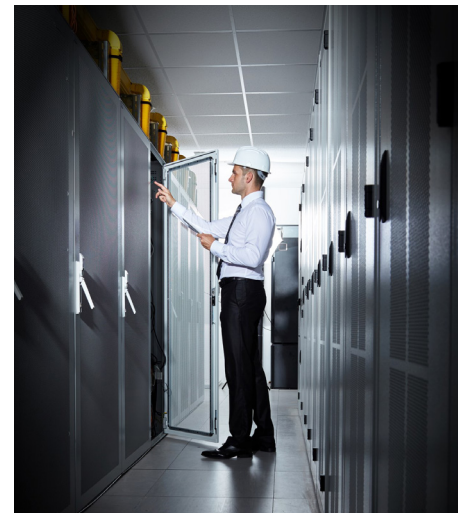
A two port valve on the secondary chilled water supply to the rear door coolers ensures that sufficient chilled water can enter the coil at any time. The pump set in each CDU ensures that the inverter in the pump provides enough water to suit demand.



Conclusion

Once fully installed, all water flow rates were re-balanced to ensure that the correct primary flow rates were achieved. For this to happen, the entire system had to be rebalanced whilst the Data Centre was live.

The newly implemented system perfectly manages the additional heat generated by the installation of the new HD servers, all whilst delivering maximum system energy efficiency. The flexibility offered to the client now ensures that all hosting opportunities can be considered.



Gary Frith, Mechanical Services Director at Sudlows, said:

"Sudlows mechanical team have delivered an exceptional technical design that has provided an outstanding cooling solution, all undertaken whilst the data centre was in active operation.

It has been a professional privilege to have worked with STFC for several years now, across a variety of their operational sites and we are delighted to assist such a world class leader in technical innovation."



CRITICAL INFRASTRUCTURES



ENTERPRISE SERVICES



FIBRE SPECIALISTS



ELECTRICAL SERVICES



BUILDING SERVICES



FACILITIES MANAGEMENT