

Case Study:
**South Yorkshire Police
Authority Turn to
Workspace Technology
to Deliver New
Shared Services
Data Centre**



South Yorkshire Police Authority sought a data centre design and build company to deliver its new £1.5 million, 40 rack shared services data centre. The facility is designed to initially house the services for both South Yorkshire and Humberside Police Authorities.

The Challenge

Faced with limited external space the design team at Workspace Technology was challenged to deploy a 2N 250kW cooling arrangement for the Police Authority. The chosen building was a former gymnasium with double height ceilings. The conventional design approach with this type of space is to install composite panel systems in order to lower the ceiling. By reducing the 'white space' volume, it will typically lower costs for the fire suppression installation.



The Solution

Data Centre Solutions



Ignoring convention, Workspace Technology's design team chose to install a mezzanine deck, maximising the attributes of the high ceiling and associated high-level windows in order to create a dedicated 'cooling' plant room situated directly above the 'white space'. This innovative and unique Freecool® arrangement breaks the mould for contemporary data centre design. With an annualised PUE of sub 1.1, the installation offers South Yorkshire Police exceptional energy performance exceeding current industry expectations.

Freecool®, Workspace Technology's industry leading direct evaporative free air-cooling technology, is the primary cooling for the data centre. By replacing windows with grilles, it was possible to create air intake and exit air paths. The design cleverly allows cool air to be ducted via the mezzanine floor directly into the data centre cold aisles. Hot air is drawn out of the hot aisles by a series of fans into the upper level 'hot chamber' where it either exits the building or is recirculated dependent on external ambient air temperature conditions.

The data centre cooling supports 2N levels of resilience for the Police Authority. Should there be a Freecool® system failure, or if programmable environmental conditions are breached, or a 'fire' event occurs, the system will automatically switch-over to the standby DencoHappel DMA095

CRAC units designed to deliver in excess of 250kW or backup cooling.

The electrical infrastructure includes Schneider Electric switchgear, fitted with PM5110 full function meters installed on all key power circuits. Schneider Electric's Power Monitoring Expert system offers the Authority with a wide range of statistical and measurable information allowing the facilities and IT team to closely monitor the energy performance of the system.

Netbotz environmental monitoring, Pelco security cameras and StructureWare for data centres DCIM management software collects and manages the data centre's assets, resource use and operation status for the data centre operations team.



Workspace
Technology Limited

The Benefits

At first glance, even to the trained eye, the newly built shared services data centre appears to be based on a conventional design, cooled by three DencoHappel DMA092 Multi-Denco CRAC units located on the perimeter of the room. On further investigation, you quickly find that this new facility has a 'hidden secret'. Located discretely out of view is a 250kW capacity direct evaporative cooling installation cleverly positioned on a mezzanine deck and constructed directly above the data centre 'white space'. The only visible clue to the existence of the Freecool® installation is a series of air grilles positioned in the data centre ceiling in both hot and cold aisles.

The resilient cooling arrangement allows the data centre to continue to operate under a wide range of conditions. Whilst operating in DX

mode the data centre still continues to deliver credible energy performance.

This new data centre has helped reduce a PUE >2.0 from its legacy data centre to an average PUE of 1.15 delivering an estimated reduction of 237 tonnes of CO₂ emissions whilst saving approximately £45,000 in energy costs per year.

South Yorkshire Police are now in possession of an energy efficient, cost effective, secure and unique shared data centre facility that will be a talking point for years to come.

Freecool Benefits

- **Energy Efficiency** - Designed to deliver PUE performance figures of less than 1.15.
- **Dual Filtration** - The combination of G3 and G4 air intake filtration systems are designed to eliminate potential contamination.

- **Atemperature™ System** - Accurately mixes a percentage of hot exit air with cold intake air to produce a stable equipment intake temperature irrespective of external ambient conditions.
- **Dynamic Mode Temperature Control** - Being in 'dynamic' mode allows cold aisle temperatures of 18°C for the vast majority of the operating period without any compromise in energy efficiency.
- **Fan Power** - Using carefully selected energy efficient EC Blue fans use significantly less energy than conventional fan technology.

 **freecool**®

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Interested in finding out more?

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