



Supermarket in Telford

Supermarket reduces energy consumption through HVAC opportunities



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1 CLIENT BRIEF

ETS put forward the business case to retrofit the existing legacy HVAC system of a leading supermarket store in Telford. The key objective of the initiative was a reduction of 10% of the store energy usage which could achieve a return on investment under 4 years. Reducing risks and maintenance and increasing customers satisfaction were added benefits to this initiative.

2 OUR SOLUTION

Mercury offered to replace the Main AHU centrifugal supply fan with 5off electronically commutated (EC) direct drive fans. The new units, acting as one, would deliver the same duty as the previous fan. Mercury also engineered the fan diffuser and some redundant components which reduced the system pressure thus increasing the efficiency from the new system.

3 PROJECT RESULT

As well as helping a leading supermarket meet their energy targets, direct drive fans have low maintenance cost which is another cost saving: no belts, less internal cleaning from belt wear, associated labour time. These fans also have no belt efficiency losses so maintain their performance throughout their life. ETS acted as clerk of works towards the end of the project to verify diligently the operation and monitor the performance of the new system



BEFORE



AFTER

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We understand the shift in buying behaviours that effect our clients; the issues surrounding the environmental impact of a company are now contributing to many consumers choosing retailers who are taking positive steps for the environment.

Tom Langdell, Mercury Climatic Services

For enquiries or more information get in touch today

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Energy Savings Calculations Table	
Total air flow (m ³ /s)	2 Zone: Sales area 4.85 m ³ /s Cabinet 6.66 m ³ /s
Total system pressure (Pa)	1021 Pa
Existing motor size (kW)	37 kW
Existing motor control	Inverter set between 100% and 80% speeds
Existing power at 100% duty (Hz)	25.38 kW (43.1 amps @ 50 Hz)
New motor power (kW)	4 x 6 kW EC fans
New motor power at 100% (kW)	4 X 3.5 kW = 17.5 kW (4 X 6.1 amps @ 50 Hz)
Extra savings (notes)	Removal of Redundant fan diffuser – 50 Pa
Cost per kW/hr	0.094865p
Total store opening hours per year (opening times minus Easter & Christmas)	4962 hours
Existing system power usage per year (kWh)	125,935.56 kWh
Existing running cost per year (£)	£11,946.87
New system power usage per year (kWh)	86,835.00 kWh
New running cost per year (£)	£8,237.60
Saving per year (£)	£3,709.27
Install cost (£)	Total: £12,850.00 New EC fan wall: £11,450.60 Air testing – before and after: £1,400.00
Pay back (years)	3.46 years



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