

BUILDING VENTILATION SOLUTIONS

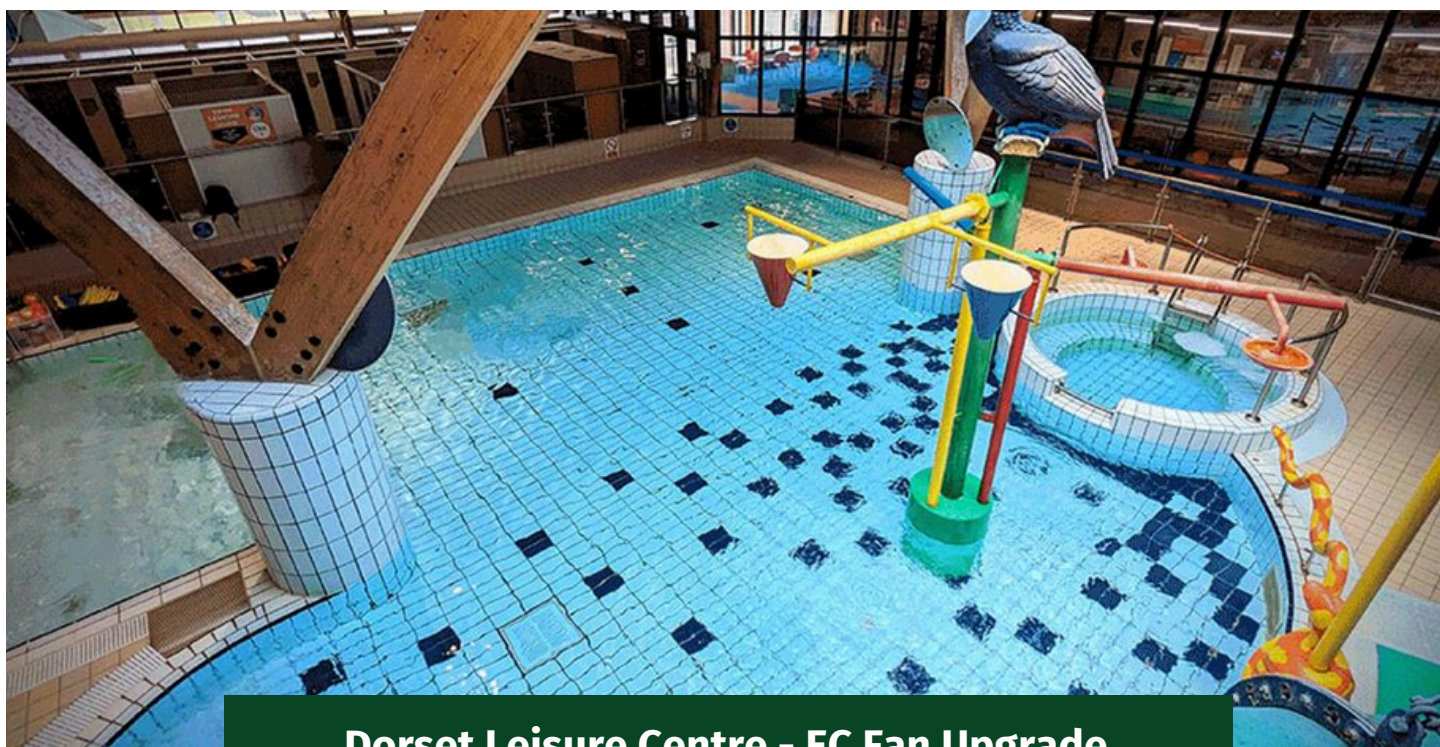
Case Study EC Fan Upgrade Leisure Centre, Dorset



Case Study - Leisure Centre, Dorset - EC Fan Upgrade

When BVS first inspected the swimming-pool air-handling unit (AHU), it was clear the system was no longer protecting either the building fabric or the comfort of pool users. Filters were missing on both supply and extract sides, allowing debris to clog the heating coil and plate heat exchanger. Fresh-air and exhaust dampers were closed, the return-air plenum was corroded and drawing plant-room air, and the condensate pan was leaking badly. Supply and extract fans had shredded belts and produced excessive noise, and almost no airflow reached the pool hall.

As a result, humidity and temperature control were virtually non-existent—any warmth came only from the pool's thermal mass, risking serious long-term damage to the building. Since that initial visit, a temporary bearing repair kept the extract fan running, but a permanent solution was essential. After a detailed site survey and airflow measurements, BVS designed a targeted upgrade to restore proper ventilation, improve energy efficiency, and safeguard the structure.



Dorset Leisure Centre - EC Fan Upgrade



New EC Fan Selection:

Specified two Ziehl-Abegg 451 EC fans, each capable of delivering the required 6 m³/s airflow at up to 1,600 Pa, plotted on the fan curve for optimal performance.

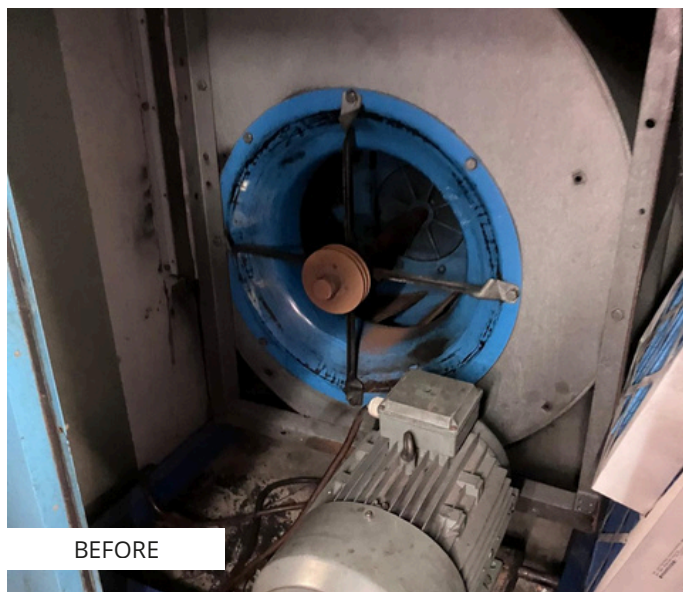
Supply Fan Replacement:

Installed the directly driven EC fans to meet the plated air volume of 6 m³/s against 350 Pa plus internal component resistance, including the newly added low-grade heating coil.

Electrical Intergration:

Extended power wiring and 0–10 V speed-control signals to external terminal boxes, allowing the client to remove the existing inverter and choose either manual potentiometer control or automated speed regulation via existing or future controls.

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AHU Supply Fan Section Upgrades

We removed the existing belt-driven supply fan, fabricated and installed new fan bulkheads, fitted two GR561-ZID EC fans for supply, then completed the wiring and carried out full testing.



The Results

The upgraded EC fan system now delivers consistent, efficient airflow to the pool hall, restoring humidity and temperature control and protecting the building fabric. With high-efficiency, low-maintenance EC technology and simplified controls, the facility benefits from lower running costs, quieter operation, and reliable long-term performance—without the need for a full AHU replacement.

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EC Fan Upgrades - The Benefits

We carried out a full refurbishment of an aging AHU for a major aerospace client, avoiding the need for full replacement. By upgrading key components, addressing internal corrosion, and installing new EC fans and controls, we restored the unit to full efficiency and compliance — saving the client significant cost and downtime.

Precise Humidity Control

EC fans provide accurate, variable-speed airflow, helping maintain the tight humidity levels essential to protect pool-hall finishes, prevent condensation, and avoid structural damage.

Better Air Quality for Swimmers

Consistent fresh-air delivery reduces chlorine by-products and stale air, improving comfort and respiratory health for pool users and staff.

Energy Efficiency in a High-Moisture Environment

Electronically commutated motors use significantly less power than belt-driven fans, lowering operating costs in facilities that run ventilation systems almost 24/7.

Quieter, More Pleasant Atmosphere

Direct-drive EC fans eliminate belt noise and vibration, creating a calmer acoustic environment around the pool.

Reduced Maintenance & Downtime

No belts to replace, fewer moving parts, and sealed electronics mean less corrosion, fewer breakdowns, and lower maintenance demands in humid, chemical-rich air.

Improved Lifespan of Building Fabric

Reliable airflow prevents warm, moisture-laden air from lingering on walls, ceilings, and glazing—protecting structural elements and finishes from mould, rust, and decay.

Lower Long-Term Operating Costs

The combination of energy savings, reduced maintenance, and longer fan lifespan translates into significantly lower lifetime costs compared to traditional fan systems.

GET IN TOUCH WITH US

Our dedicated team is ready to assist you with your needs. Get in touch and we'll promptly respond to your inquiry. Don't hesitate to contact us for your personalised savings calculation today!

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