BUILDING VENTILATION SOLUTIONS

AHU Refurbishment Case Study

Middle Wallop - AHU Refurbishment

Our client, a player in the aerospace industry, had been advised that their existing air-handling unit (AHU) required full replacement to meet current specifications and regulatory compliance. Given the scale and critical nature of their facility, this posed a costly and potentially disruptive challenge.

Following a detailed technical survey, we found the AHU casework to be in good condition and identified that a full replacement was unnecessary. Instead, we proposed a more cost-effective and sustainable solution: a complete AHU refurbishment. This approach not only saved the client around half the cost of replacement but also ensured the unit would continue to operate reliably for another 20 years or more — meeting all required standards without the disruption of a full system overhaul.

Air Handling Unit Refurbishment

Survey and Initial Assessment
A technical survey assessed the AHU's condition, identifying corrosion, blockages, and mechanical issues to define the refurbishment scope.

Inlet System Works
Sections of insulation were removed and an access hatch installed to clear debris from the blocked louvre. Corrosion and water ingress were found, with further investigation advised.

AHU Internal Cleaning & Refurbishment
The AHU was cleaned internally, corrosion treated, dampers, seals, and hardware replaced as needed, and filters and maintenance labels installed.

AHU Fan Section Upgrades
Existing fans were replaced with two efficient Ziehl-Abegg EC fans per unit, with new wiring and tamper-proof speed controls installed.

Commissioning Report
Airflow and fan speeds were tested and adjusted; final balancing awaited confirmation that all fire dampers were reset by the client.

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Case Study - Middle Wallop, AHU Refurbishment

BEFORE

AFTER

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.

BEFORE

AFTER

AHU Extract Fan Section Upgrades

We removed the existing belt-driven supply fan, fabricated and installed new fan bulkheads, fitted two GR501-ZID EC fans for supply, then completed the wiring and performed comprehensive testing.

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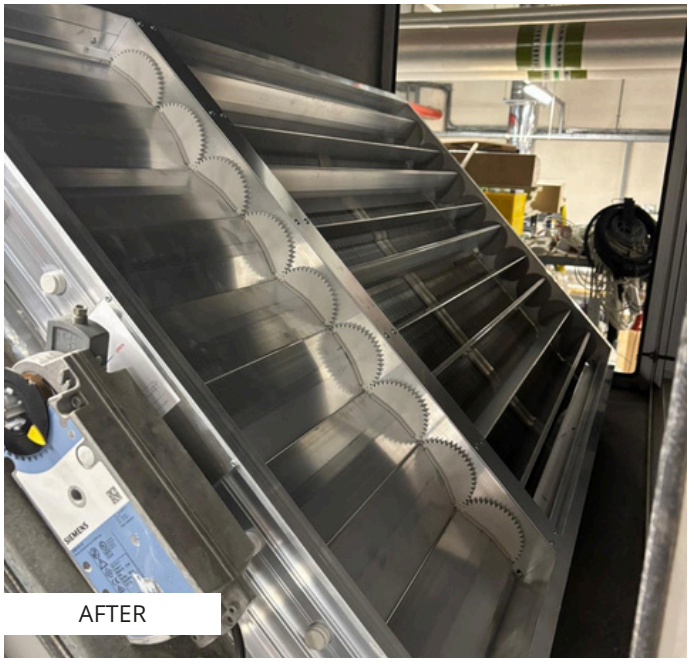
BEFORE



AFTER

Extract Damper Replaced

The heavily corroded extract damper was removed and replaced with a new unit, complete with a fresh actuator integrated into the site's BMS system to ensure reliable and efficient control.

BEFORE

AFTER

Fresh Air Damper Replaced

The corroded fresh air damper was removed and replaced with a new unit, including an actuator integrated with the BMS system.

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BEFORE

AFTER

Replacement Condensate Drip Tray

The existing condensate drip tray was removed due to signs of corrosion and water damage. A new, robust replacement was installed to ensure proper drainage and prevent future water ingress issues.

Controls & BMS

The fresh air damper actuator was installed and wired into the control system, along with the 0–10V fan speed controls for precise and reliable operation.

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Project Overview - The Benefits

AHU Refurbishment 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.

Cost Savings and Operational Continuity

Refurbishing the existing AHU saved the client approximately 50% compared to the cost of a full replacement. This approach avoided the significant disruption, downtime, and on-site assembly associated with new flat-pack unit installation.

Improved Efficiency and Reliability

By upgrading to energy-efficient EC fans, replacing worn dampers, and optimising airflow controls, the system now runs more efficiently and with greater reliability — contributing to consistent internal environmental conditions and reduced risk of breakdowns.

Extended Asset Lifespan

Corrosion treatment, internal cleaning, and the replacement of key components significantly extended the life expectancy of the AHU, offering at least another 20 years of performance without major reinvestment.

Sustainability and Environmental Compliance

Refurbishment dramatically reduced material waste and embodied carbon compared to full system replacement. The upgrade aligns with corporate sustainability goals and supports environmental compliance without compromising performance.

Integration with Existing BMS

New actuators and fan controls were seamlessly integrated with the site's existing Building Management System (BMS), allowing for precise operational control and energy optimisation with no need for additional software or hardware upgrades.

Minimal Site Disruption

Because the original AHU casework was retained, all works were carried out in-situ without structural modification or plant room alterations. This allowed the site to remain operational throughout the project.

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