BUILDING VENTILATION SOLUTIONS

Newton Mearns, Glasgow
AHU Refurbishment & Pipework Replacement

Introduction - Newton Mearns Shopping Centre

Located within the Newton Mearns Shopping Centre, we focused on the comprehensive refurbishment of three existing weatherproof Air Handling Units (AHUs) that provide tempered air to the main shopping mall areas.

The client required a cost-effective, energy-efficient refurbishment that would extend the operational life of the AHUs while improving performance reliability. We were therefore commissioned to undertake a full refurbishment designed to modernise and futureproof the plant without the disruption or high cost of complete replacement.

By retaining the existing AHU housings and structure, BVS delivered an environmentally responsible solution that reduced waste and embodied carbon while ensuring improved energy efficiency, reduced maintenance demands, and a projected service life extension of 10–15 years. The works were carefully coordinated to minimise disruption to daily shopping centre operations, maintaining safe and continuous occupancy throughout the refurbishment process.

The Avenue Shopping Centre, Glasgow

AHU Refurbishment

Each AHU underwent a complete refurbishment, including the removal of existing components and installation of high-efficiency backward-curved supply fans and EC extract fan walls to reduce energy usage and improve airflow control. The original direct-fired gas burners were replaced with modern, fully modulating models compatible with current gas safety standards and integrated into the existing Trend control system. All internal and external surfaces showing corrosion were cleaned and treated, new panel and bag filters were installed, and lighting and access components were renewed to restore safe, efficient, and reliable operation across all three units.

Gas Distribution Replacement

The existing mild-steel gas distribution network was removed and replaced with new 316-grade stainless-steel pipework featuring pressed joints, isolation valves, and robust Big Foot support systems. All pipework was strength tested, purged, and tightness tested to IGEM UP 1 and 2 standards to ensure full compliance and long-term safety.

Controls Integration and Commissioning

New gas burners and EC fans were integrated with the existing Trend control infrastructure, with commissioning works verifying full modulation, speed control, and operational synchronisation to achieve optimal efficiency and balanced airflow.

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BEFORE

AFTER

Belt-Driven Fan Replacement
The existing belt-driven fans were replaced with modern, equivalent belt-driven units to enhance reliability and maintain system performance.

BEFORE

AFTER

EC Fan Upgrade
The existing belt-driven fan was replaced with a high-efficiency EC fan to improve performance and reduce energy consumption.

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BEFORE

AFTER

Gas Burner Upgrade

The existing gas burner was removed and replaced with an upgraded model compliant with current gas safety standards and fully integrated into the existing Trend control system.

BEFORE

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BEFORE

AFTER

Panel & Bag Filter Upgrades

The panel and bag filters were upgraded to AF101 Type AP and AB85 Type respectively, improving air quality, filtration efficiency, and overall system performance.

BEFORE

AFTER

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BEFORE

AFTER

Damper Replacement

The existing dampers were replaced as the original units had seized and were no longer operational, ensuring reliable airflow control and improved system performance.

BEFORE

AFTER

AHU Door Replacements

The AHU doors and catches were replaced due to corrosion on the existing units and evidence of water ingress and restoring proper sealing.

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BEFORE

AFTER

Gas Distrubtion Pipework Replacement

The existing mild-steel gas distribution network was replaced with new 316-grade stainless-steel pipework, incorporating pressed joints, isolation valves, and durable Big Foot support systems for enhanced safety and reliability.

BEFORE

AFTER

Case Study - Newton Mearns Shopping Centre

BEFORE

AFTER

Gas Pipework Reconfirguration

While some pipework routes were retained, many were adapted and reconfigured to improve efficiency and optimise system performance.

BEFORE

AFTER

The Results

The refurbishment improved efficiency, safety, and reliability across the system. Upgrades included new belt-driven and EC fans, a compliant gas burner integrated with the Trend system, enhanced AF101 Type AP and AB85 Type filtration, and new stainless-steel gas pipework. Seized dampers, corroded AHU doors, and outdated pipework routes were also replaced or reconfigured to optimise performance.

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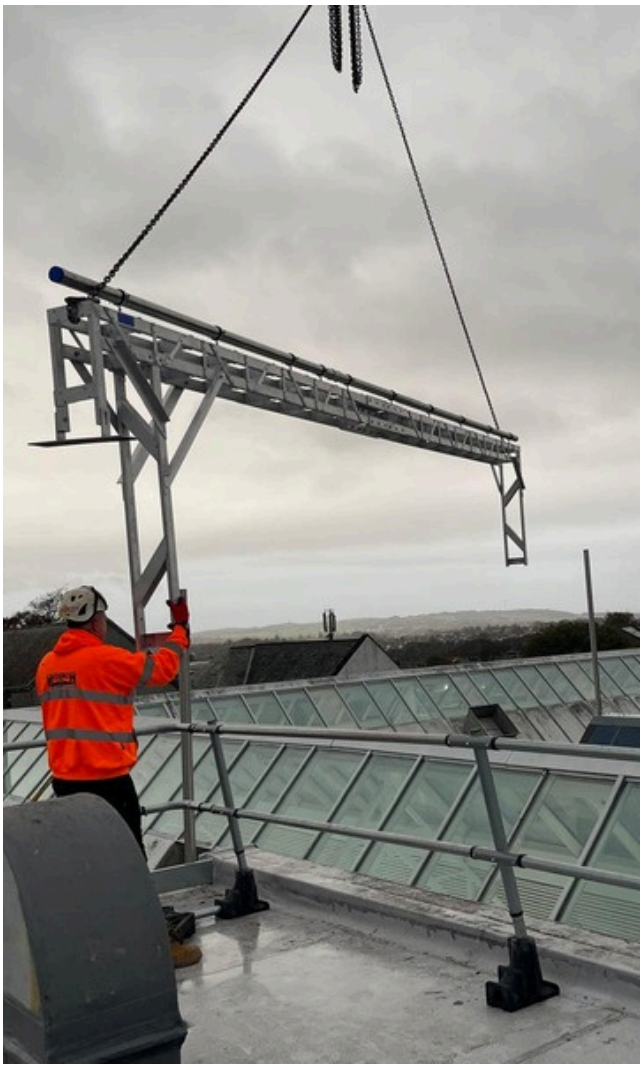
Gas Pipework Installation

Our team manufactured a bridge scaffold to safely route the gas pipework over the shopping centre's glass structure without causing any damage. Once constructed, the bridge was carefully craned across the roof and positioned over the glass, allowing our engineers to securely bolt it in place and connect the gas. The operation was carried out outside of normal working hours to ensure safety and was meticulously coordinated with the crane team.



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AHU Refurbishment - Project Benefits

This AHU refurbishment project demonstrates how a targeted upgrade approach can deliver substantial improvements in efficiency, reliability, and sustainability without the need for full system replacement.

By modernising key components and optimising performance, the project extended the unit's operational lifespan while reducing energy consumption and environmental impact. The result is a more resilient and controllable system that meets current standards and supports long-term building performance.

Energy Efficiency

Improved overall system performance through modernised fan and burner technology.

Extended Lifespan

AHU lifespan increased by an estimated 10–15 years without the need for full replacement.

Operational Reliability

Enhanced reliability and reduced unplanned downtime through upgraded components and system optimisation.

Safety Compliance

Increased safety achieved with compliant 316-grade stainless-steel gas distribution systems.

Advanced Control

Improved controllability through upgraded actuators and full Trend system integration.

Reduced Power Consumption

Lower electrical usage thanks to high-efficiency EC extract fan technology.

Environmental Responsibility

Refurbishment carried out with a focus on sustainability, reducing waste and embodied carbon.

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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 quote today!

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