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MANSFIELD POLLARD
AIR MANAGEMENT EXPERTS

Decarbonising Business Estates through Air Handling: Practical Pathways to Net Zero

WHITE
PAPER

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executive **SUMMARY**

Air handling units are the unsung infrastructure of modern estates. They work silently above ceilings and on rooftops, delivering fresh air, maintaining indoor quality and regulating comfort. They are also among the largest consumers of energy in a building, often accounting for up to 40% of total electricity use[1]. Their continuous operation, combined with ageing plant, outdated components and inefficient controls, makes them one of the most significant and overlooked sources of carbon emissions in the built environment.

Decarbonisation targets set by government, regulators and investors mean that every estate must now address the performance of its mechanical and electrical systems. Lighting upgrades and renewable energy integration have been widely prioritised, but air handling remains under recognised despite its scale of impact. Without targeted interventions in air handling, no credible net zero pathway for a commercial, healthcare, retail or education estate can be achieved.

The opportunity is clear. Advances in fan and motor technology, high efficiency heat recovery, low leakage casing design, electrification of heating, and factory integrated controls have transformed the performance profile of modern air handling systems. At the same time, refurbishment strategies make it possible to recover lost efficiency, extend the life of existing plant by fifteen to twenty years, and avoid the embodied carbon associated with full replacement. Modular and bespoke solutions allow decarbonisation programmes to be delivered across constrained sites and complex estates with speed and certainty.

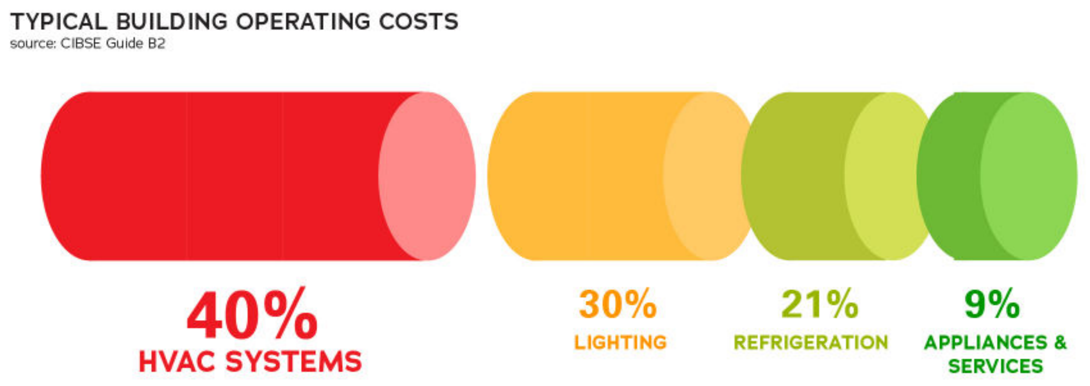
Regulation is accelerating this shift. UK Building Regulations Part L, the Ecodesign Directive, the F Gas phase down and mandatory reporting through schemes such as ESOS all place a sharper focus on ventilation efficiency. For estates teams and consultants, compliance is now inseparable from carbon performance.

This white paper demonstrates why air handling must be placed at the centre of every decarbonisation strategy. It explores the technical drivers of energy and carbon reduction in air handling units, examines the regulatory and market context, and shows how refurbishment, modular and bespoke solutions can be combined to deliver measurable outcomes. It also highlights sector specific pathways, from hospitals and schools through to industrial estates and data centres, and explains how Mansfield Pollard's integrated in house capability removes risk, accelerates delivery and provides evidence backed carbon savings.

Air handling is the silent driver of decarbonisation. Those estates that address it with urgency will not only reduce emissions and operating costs but also protect compliance, enhance resilience and build a stronger platform for long term net zero success.

2. The Hidden Carbon Cost of Air Handling

Air handling units represent one of the most significant but least visible contributors to building energy consumption. In many non-domestic buildings, ventilation systems can account for up to 40% of total electrical use[1]. Unlike lighting or IT loads, which vary with occupancy, AHUs often operate continuously. Many run for 18-24 hours a day, 7 days a week. The result is a system whose energy and carbon impact is disproportionately high compared to its visibility within



estate management strategies.
The majority of existing AHUs in the UK were installed more than a decade ago. These units were designed to standards that fall well below those now mandated by regulation. It is still common to find fan systems with specific fan powers in excess of 3.0 W/l/s, compared to modern electronically commutated plug fans that regularly achieve below 1.8 W/l/s.". Casing leakage is another area of concern. Units performing at class L3 under BS EN 1886 can lose more than 5% of conditioned air, while modern L1(A) casings limit leakage to below 1%[3]. Thermal bridging in outdated panel designs further undermines performance, allowing uncontrolled heat gain or loss and driving unnecessary load on coils.

Heat recovery presents another gap between legacy plant and modern requirements. Many older plate heat exchangers achieve only 30-40% sensible recovery efficiency, if fitted at all. By contrast, Part L 2021 sets a minimum heat recovery efficiency of 73%[6], and rotary systems now achieve up to 85%[4]. The consequence of under-performing or absent recovery is thousands of kilowatt hours of wasted heating or cooling energy every year.

Controls often compound these inefficiencies. In many buildings AHUs continue to operate in fixed speed mode, delivering constant air volumes regardless of occupancy or demand. Others run on outdated time schedules that bear no relation to the actual use of the space. This lack of control integration can lead to heating and cooling systems operating simultaneously, ventilation of unoccupied zones, and filter pressure losses being ignored until performance is severely degraded.

All of these factors translate directly into carbon emissions. Electricity consumed by fans and coils contributes to Scope 2 emissions, while gas-fired coils feed into Scope 1. For estates now required to provide transparent and verifiable carbon reporting, AHUs are becoming one of the largest identifiable contributors within mechanical and electrical systems.

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The scale of the opportunity is equally clear. Replacing a belt-driven fan wall with EC plug fans can halve electrical consumption immediately[2]. Upgrading a leaking casing from class L3 to class L1(A) reduces uncontrolled losses by up to 90%[3]. Installing a high efficiency heat exchanger can lift recovery efficiency from 40% to over 75%[4], transforming the thermal load profile of the system. Across an estate with dozens of units, the cumulative effect is measured not in marginal gains but in double-digit percentage reductions in total building energy use.

Ignoring the hidden carbon cost of air handling is no longer an option. Refurbishment programmes can extend asset life by fifteen to twenty years while meeting current efficiency standards. Where replacement is required, modular and bespoke systems deliver compliance and performance from day one. In both cases, estates gain measurable reductions in operating costs and verifiable carbon savings, supporting both regulatory compliance and ESG reporting.

3. Regulation and Market Drivers

The decarbonisation of estates is being driven by a combination of statutory regulation, voluntary standards and corporate ESG commitments. For air handling, this means performance is no longer only a matter of operational efficiency. It is also a compliance issue and a critical factor in how organisations report their carbon footprint.

UK Net Zero 2050
The UK Government's legally binding target to reach net zero greenhouse gas emissions by 2050 has placed buildings under intense scrutiny. Non-domestic estates contribute around one quarter of national emissions, and ventilation is one of the most energy-intensive services within them. Air handling is therefore central to any credible pathway.

Building Regulations Part L
Approved Document L 2021 establishes minimum standards for the conservation of fuel and power in buildings. For centralised ventilation systems, it requires sensible heat recovery efficiencies of at least 73% and places limits on specific fan power[6]. Many legacy units fall well below these requirements, making refurbishment or replacement the only viable pathway to compliance.

Ecodesign Regulation
The Ecodesign Regulation (EU 1253/2014), retained in UK law, sets mandatory minimum energy performance standards for ventilation units. It covers fan efficiency, internal specific fan power and heat recovery[7]. Any new or replacement AHU must meet these thresholds, while existing units can be benchmarked against them to highlight the scale of underperformance.

F Gas Regulation
For AHUs incorporating direct expansion coils, refrigerant choice is now a major decarbonisation driver. The UK F Gas Regulation, based on EU Regulation 517/2014, requires a 79% reduction in HFC consumption by 2030 relative to the 2009–2012 baseline[8]. Common refrigerants such as R410a are being phased out in favour of lower GWP alternatives such as R32, R454B and natural refrigerants. Systems designed today with legacy refrigerants risk obsolescence within a single investment cycle.

Energy Savings Opportunity Scheme (ESOS)
ESOS requires large UK organisations to carry out regular energy audits and identify cost-effective savings. In many energy audits, ventilation is identified as a disproportionately high energy consumer[9]. Organisations that fail to implement identified measures risk both regulatory penalties and reputational damage.

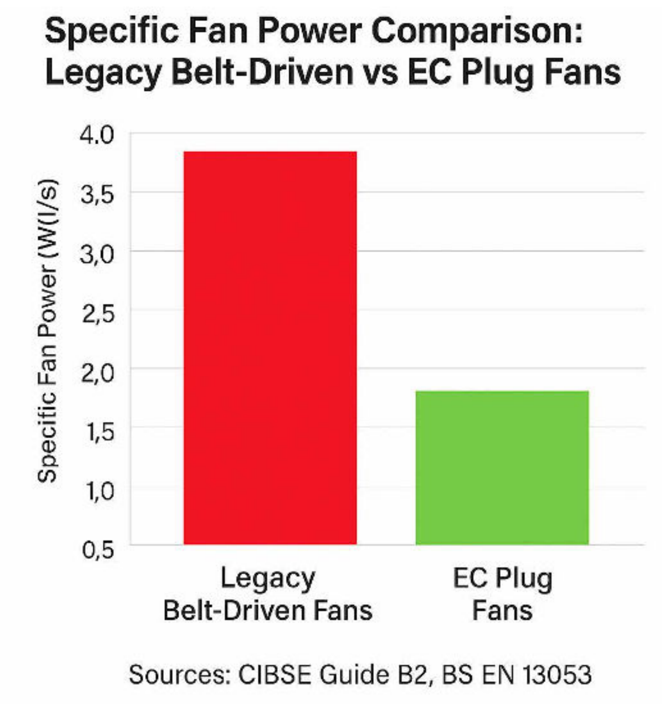
ESG and Investor Pressure
Beyond statutory requirements, corporate governance frameworks and investor expectations are pushing organisations to disclose carbon performance transparently. Air handling contributes directly to both Scope 1 and Scope 2 emissions, making it a key area for estates managers seeking to demonstrate progress. Evidence-backed reporting is increasingly expected at board level, linking ventilation upgrades directly to shareholder value and brand reputation.

The regulatory and market environment is unambiguous: air handling is no longer a hidden system. Its performance is subject to compliance, its emissions are material to ESG disclosures, and its optimisation is essential to both short- and long-term carbon reduction.

4. The Technical Drivers of Decarbonisation in Air Handling

Air handling units influence energy and carbon performance through a series of interdependent technical factors. Each one must be addressed if estates are to achieve genuine and verifiable reductions in consumption and emissions.

Fans and Motors
Legacy belt-driven fans are mechanically inefficient, prone to wear, and deliver specific fan power values often greater than 3.0 W/l/s. In contrast, Electronically commutated plug fans achieve below 1.8 W/l/s[4], providing immediate energy reductions of up to 50%[5]. They also reduce maintenance requirements and generate less noise. Replacing outdated fan walls is one of the fastest and most effective decarbonisation measures available.



Heat Recovery
Modern rotary and plate heat exchangers achieve efficiencies of 75-85%, compared with the 30-40% typical of older systems. Approved Document L 2021 now requires a minimum of 73% for centralised systems[11]. Retrofitting a high-efficiency exchanger can transform an AHU's thermal profile, reducing heating and cooling loads by thousands of kilowatt hours annually.

Heating and Cooling Coils
Gas-fired coils and boiler-fed hot water systems lock estates into Scope 1 emissions. Transitioning to electric coils or coils supplied by air or ground source heat pumps enables electrification of heating, aligning estates with the decarbonising UK grid[13]. Proper coil selection is essential. Face velocities below 2.5 m/s maintain efficiency at lower water temperatures, a

prerequisite for effective integration with low-temperature heat pump systems[13].

Direct Expansion Systems and Refrigerants
Where direct expansion coils are fitted, refrigerant choice becomes critical. Systems based on R410a (GWP 2088) face obsolescence as the UK F Gas Regulation enforces a 79% reduction in HFC consumption by 2030[8].. Transitioning to lower-GWP refrigerants such as R32 (GWP 675) or R454B (GWP 466), or adopting natural refrigerants where viable, ensures long-term compliance and reduced environmental impact. Coil and control design must also accommodate part-load performance and leak detection.

Controls and BMS Integration
Controls represent the single largest opportunity for rapid energy savings. Demand-controlled ventilation, pressure optimisation, and supply air temperature reset strategies can reduce consumption by up to 30%[17] without hardware replacement.. Factory-integrated controls with native BMS interfaces ensure optimisation from commissioning, while retrofit systems can unlock savings in legacy units with minimal disruption.

Casing Leakage and Thermal Bridging
Casing performance directly affects energy use. Under BS EN 1886, leakage class L1(A) limits uncontrolled losses to below 1% of airflow, compared to more than 5% for L3 units still common in older estates[3]. Thermal bridging class TB2 minimises unwanted heat transfer through panel joints, further reducing energy demand[6]... Refurbishment programmes that replace panels, seals and doors can elevate performance to modern standards without full replacement.

Filtration and Pressure Drop
Filtration is essential for indoor air quality but often contributes hidden energy penalties. ISO 16890 defines filter performance by particulate size capture, allowing selection of grades appropriate to the application[17]. Overspecification increases pressure drop unnecessarily, raising fan energy demand. Pressure monitoring and timely filter replacement maintain IAQ while minimising wasted energy.

System Design and Balancing
Many systems were originally oversized to accommodate uncertain loads. As a result, they deliver excessive air volumes at unnecessary energy cost. Rebalancing airflows, installing variable speed drives and resetting system setpoints can yield double-digit reductions in fan energy consumption[7].

Embodied Carbon
Operational efficiency is only part of the carbon equation. Manufacturing and installing new AHUs carries significant embodied emissions. CIBSE TM65 highlights the importance of including embodied carbon in lifecycle analysis[8].. Refurbishment retains existing casings and structures, avoiding the majority of embodied impact while still achieving operational improvements.

Electrification Readiness
The decarbonisation of the UK grid makes electrification the most important long-term driver of carbon reduction. AHUs must be designed or refurbished to support this transition. That means integrating electric coils, ensuring compatibility with low temperature hot water, and designing for seamless connection to air or ground source heat pumps[12]. Futureproofed systems must also allow for control strategies that coordinate with heat pump operation, such as defrost cycles, part-load modulation and sequencing with secondary plant. Failure to plan for electrification risks locking estates into gas infrastructure that will be non-compliant and commercially unviable within the next investment cycle.

Acoustics and Indoor Environmental Quality
Decarbonisation strategies must not compromise occupant wellbeing. Acoustic attenuation reduces the need for overpowered fans while maintaining acceptable noise levels. Improved filtration enhances indoor air quality[5], aligning carbon reduction with health and productivity outcomes. In sectors such as healthcare and education, these co-benefits strengthen the case for investment.

5. Digitalisation and Performance Verification

Decarbonisation is no longer only a question of equipment efficiency. It also depends on the intelligence of the systems that control and monitor plant performance. Without accurate measurement, optimisation and verification, energy savings remain assumptions rather than demonstrable outcomes. For estates teams who must provide evidence to auditors, boards and regulators, digitalisation is no longer optional but an essential component of every decarbonisation strategy.

Controls Integrated from the Factory
Modern AHUs can be supplied with fully integrated control systems. Delivered as part of the manufactured package, these controls arrive preconfigured with strategies such as demand-led ventilation, variable airflow adjustment, supply air temperature reset and fault diagnostics[5].. This approach eliminates the compatibility problems and commissioning delays that often arise when controls are added on site. It also ensures that the unit operates to its designed efficiency from day one.

Smart Control Strategies
The most effective carbon reductions come when ventilation is dynamically matched to demand. Carbon dioxide sensors can modulate fresh air rates according to occupancy, preventing energy wasted on unoccupied zones. Variable speed drives allow fan arrays to trim power to the lowest effective setpoint, and supply air temperatures can be reset automatically in response to external conditions[20]. Studies have shown that these strategies can cut AHU energy use by up to 30% without any physical replacement of components[5].

Remote Monitoring and Analytics
Cloud-based monitoring platforms enable continuous visibility of system performance. Data on fan energy, airflow rates, filter resistance and coil temperatures can be trended in real time. This allows early identification of inefficiencies such as fouled coils, blocked filters or failing fans before they escalate into energy penalties or downtime[5].. Predictive analytics can also inform maintenance schedules, reducing both cost and carbon associated with reactive interventions.

Digital Twins and Estate-Wide Planning
Integration of AHU performance data into digital twin models provides estates managers with a powerful decision-making tool. Digital twins allow simulation of refurbishment, replacement or

control strategies at both unit and estate scale before investment is committed. For multi-site portfolios, this supports consistency, comparability and rapid mobilisation of proven solutions across multiple buildings[5].

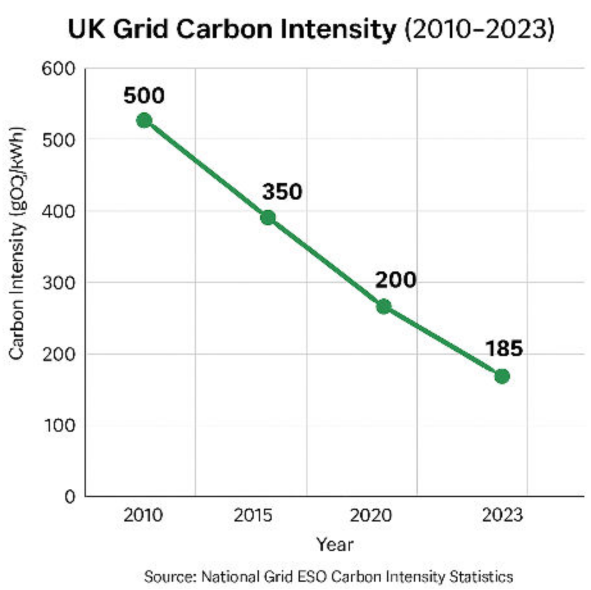
Measurement and Verification
Perhaps the most important role of digitalisation is to provide evidence that carbon savings have actually been delivered. Baseline energy data can be established prior to intervention, and post-project monitoring can demonstrate the realised impact. This is essential for compliance with frameworks such as ESOS and ISO 50001[9],, which require defensible reporting, and it supports corporate ESG disclosures where board-level stakeholders expect transparent verification. CIBSE TM54 identifies the persistent gap between design and operation in building services[20]; only through measurement and verification can this gap be closed.

Digitalisation transforms air handling from a hidden energy risk into a measurable, controllable and optimisable asset. By embedding intelligence into every unit, Mansfield Pollard ensures that estates managers can reduce consumption, prevent waste, and provide credible evidence of carbon savings.

6. Resilience and Futureproofing

Decarbonisation measures cannot be limited to present day efficiency gains. Air handling systems upgraded or replaced today must remain resilient to future climate conditions, regulatory tightening and operational demands. A future-ready approach reduces the risk of stranded assets, avoids premature replacement and ensures compliance across the lifetime of the equipment.

Climate Adaptation
The UK is projected to experience more extreme weather as the climate changes. According to the Climate Change Committee, average summer temperatures could rise by up to 5.4°C by 2070, with a 30–50% increase in the frequency of days exceeding 30°C[10].. This places greater stress on cooling systems and increases the importance of high efficiency heat recovery, coil design that maintains sensible and latent balance at higher loads, and control strategies that modulate in real time.



AHUs that are undersized for peak cooling events or designed without redundancy will require energy intensive workarounds as temperatures rise. Futureproofed systems must incorporate sufficient coil surface area, face velocities below 2.5 m/s to maintain efficiency at low flow temperatures[13], and integrated bypass and free cooling options to mitigate extremes.

Electrification and Grid Decarbonisation
National Grid ESO data shows that average grid carbon intensity has fallen from over 500 gCO_2/kWh in 2010 to less than 200 gCO_2/kWh in 2023[11].. As the grid continues to decarbonise, electrification of heating and cooling becomes the most effective pathway to reduce operational emissions. AHUs must therefore be designed with electric coils, low temperature hot water compatibility and heat pump integration[12].

Refurbishment programmes that replace gas-fired coils with electric alternatives provide immediate alignment with this trajectory. Futureproofing also requires consideration of electrical infrastructure capacity, breaker sizing and control coordination with heat pump defrost cycles.

Compliance Trajectory
Regulatory standards are tightening on a rolling basis. Approved Document L 2021 requires a minimum sensible heat recovery efficiency of 73% for non-domestic ventilation systems[6]. EN 1886 defines casing performance classes, with L1(A) for leakage and TB2 for thermal bridging already considered best practice[2]. The Ecodesign Regulation EU 1253/2014 continues to enforce minimum fan and heat recovery performance in the UK[3].

For direct expansion systems, the UK F Gas Regulation requires a 79% reduction in HFC consumption by 2030 compared to the 2009–2012 baseline[4]. Systems designed today with legacy refrigerants such as R410a risk obsolescence within this timeframe. Specifying low GWP refrigerants such as R32 or R454B, or adopting natural refrigerants where feasible, ensures compliance longevity.

Operational Continuity
Future-proofing also encompasses resilience of operation. In healthcare, food production and retail environments, downtime is unacceptable. Fan arrays with n+1 redundancy, factory tested controls, and remote monitoring are essential to prevent unexpected failures. BS EN 13053 requires defined levels of mechanical strength and component reliability, which should be exceeded in mission critical applications[2].

Upgrade Pathways
Resilience includes the capacity to integrate future technologies. Modular casings with space provision for additional coils, factory wired interfaces for new sensor inputs and segmented fan arrays allow incremental upgrades without complete replacement. Estates benefit from reduced lifecycle costs and the ability to respond to future compliance requirements or shifts in building use.

By embedding resilience and futureproofing into every project, air handling becomes a long-term asset rather than a short-term intervention. Systems designed to adapt to climate change, grid decarbonisation, regulatory tightening and operational continuity protect estates from risk and deliver sustained carbon reductions across their entire lifecycle.

7. Pathways to Decarbonisation: Refurbishment, Modular and Bespoke

No two estates are identical. The age of plant, the space available, the operational pressures and the carbon targets all vary. For this reason, there is no single route to decarbonising air handling. Instead, success depends on selecting the right mix of refurbishment, modular and bespoke systems, delivered through an integrated strategy.

Refurbishment
Refurbishment offers the opportunity to recover lost performance from existing plant while avoiding the embodied carbon of full replacement. By retaining the casing and structure of the unit, refurbishment reduces material use while upgrading the components that drive energy and carbon savings[16].

Typical measures include the replacement of belt-driven fans with EC plug fans, installation of high-efficiency heat exchangers, resealing of casings to improve leakage class, and integration of new control systems. These interventions can reduce fan energy use by up to 50% and increase heat recovery efficiency by over 30%[5].. Service life can be extended by fifteen to twenty years at a capital cost typically 30–70% lower than full replacement[5].

Refurbishment is also the least disruptive option. Phased programmes allow units to remain operational during works, and projects can often be delivered without major structural modifications to plant-rooms or rooftops. For estates where operational continuity is critical, refurbishment provides a practical balance between decarbonisation and disruption.

Modular Air Handling Units
Where space is constrained or rapid mobilisation is required, modular air handling units provide a highly effective solution. Delivered as factory-assembled sections, modular units can be craned into position and connected on site with minimal disruption to operations. This makes them particularly valuable for rooftop installations, sites with limited access, or projects that must be completed within narrow time windows.

Modular units are designed to modern standards from the outset, with leakage class L1 and thermal bridging class TB2[3], and integrated controls ensuring compliance. They also support fast installation, with commissioning times significantly reduced compared to bespoke systems. For estates with multiple similar sites, modular units offer repeatability and scalability, allowing consistent decarbonisation outcomes across a portfolio.

Bespoke Systems
Some estates require performance that cannot be met by modular plant. Complex airflow requirements, specialist filtration, high resilience, or integration with unique building layouts all necessitate bespoke air handling solutions. These units are engineered to match the exact operational requirements of the site, with tailor-made fan arrays, coil configurations, and control strategies.

Bespoke systems allow advanced features such as heat pump integration, low-temperature operation, or hybrid ventilation modes to be incorporated from first principles. They are also the most futureproof option, as additional coil banks, spare fan array slots or dedicated plant spaces can be built into the design for later upgrade.

The Integrated Model
In practice, most estates require a combination of all three pathways. An estate may refurbish units in acceptable condition, replace others with modular systems where disruption must be minimised, and install bespoke units in mission-critical areas. The key is integration. By delivering all three solutions in-house, Mansfield Pollard provides estates managers with a single point of responsibility. This removes risk, ensures accountability, and allows each project to be optimised for both carbon reduction and operational continuity.

8. The Business Case for Estates Managers
Air handling upgrades present one of the strongest business cases for estates managers pursuing decarbonisation. Unlike many interventions, they deliver measurable benefits across capital expenditure, operational savings, compliance assurance and ESG reporting when the right mix of refurbishment, modular and bespoke solutions is applied.

Capital and Operational Efficiency
Refurbishment avoids unnecessary replacement by extending the life of existing assets, reducing capital outlay by up to 70% compared to new plant[5]. At the same time, upgraded fans, coils and controls deliver significant operational savings. For a typical 20,000 m^3/h unit, modernisation can reduce annual energy consumption by 50,000 to 100,000 kWh[5], equating to tens of thousands of pounds saved each year.

Modular units complement this by delivering factory-built compliance at speed. Fast installation and minimal disruption mean estates avoid the hidden costs of downtime and temporary works. Bespoke systems, designed from first principles, ensure the very highest efficiency is achieved where standard solutions cannot meet demand. Together, the three approaches ensure estates managers are not forced into a trade-off between capex and opex. Instead, they achieve savings in both.

Compliance and Risk Reduction
Upgraded AHUs meet the latest requirements under Part L, Ecodesign and F Gas regulations[6,7,8,14], ensuring estates remain compliant across their lifecycle. Modular units guarantee conformity from day one, while bespoke systems allow specific design requirements — such as healthcare resilience under HTM 03-01 — to be met precisely. Refurbishment brings legacy plant up to modern standards, avoiding regulatory breaches and the associated financial and reputational risks.

Embodied Carbon and ESG Alignment
CIBSE TM65 has brought embodied carbon into sharper focus, highlighting that up to half of a plant's lifecycle emissions can arise before it is even switched on[26]. By retaining existing casings and structures, refurbishment minimises embodied impact. Modular and bespoke systems manufactured to modern efficiency standards ensure low operational carbon. When deployed together, the portfolio-wide carbon impact is minimised across both embodied and operational emissions. This strengthens ESG disclosures and demonstrates credible progress towards net zero.

Operational Continuity and Productivity
Decarbonisation must not come at the expense of operations. Modular units are delivered and installed quickly, minimising downtime. Refurbishment programmes can be phased around live operations, and bespoke systems can be engineered with redundancy and resilience built in[10]. The result is uninterrupted service, healthier indoor environments and improved productivity for building users.

Portfolio-Level Delivery
Many organisations operate across multiple sites, each with different building ages, layouts and

requirements. Mansfield Pollard is uniquely positioned to deliver refurbishment, modular and bespoke solutions in one integrated programme[28]. This allows estates managers to decarbonise entire portfolios with consistency, comparability and efficiency, supported by a single point of responsibility.

By combining refurbishment, modular and bespoke approaches, estates managers unlock a business case that delivers both capital and operational savings, reduces embodied and operational carbon, ensures compliance and safeguards operations. Air handling becomes not only a route to net zero but a strategic enabler of financial and operational performance.

9. Conclusion

Air handling represents one of the largest single opportunities to reduce the energy consumption and carbon emissions of non-domestic estates. Although often overlooked, ventilation systems typically account for a quarter to two-fifths of building electricity use[1], making them a priority target for decarbonisation strategies.

The technical drivers of carbon reduction are well defined. High-efficiency fans, heat recovery, electrification-ready coils, low-GWP refrigerants, leakage control, filtration optimisation and digitalised monitoring all contribute measurable savings. When combined, these measures transform air handling from a hidden liability into a visible and verifiable enabler of net zero progress.

Regulation and market forces have converged to make action unavoidable. Building Regulations Part L[3], Ecodesign[4], F Gas phase-down[5] and corporate ESG frameworks mean that legacy systems are no longer tenable. Estates managers must demonstrate not only operational efficiency but also embodied carbon consideration[12], compliance assurance and futureproofing against tightening standards[14].
The pathway to decarbonisation is not singular. Refurbishment delivers capital and embodied carbon savings by extending the life of existing assets[17]. Modular systems provide rapid deployment and minimal disruption across multi-site portfolios[18].

Bespoke units ensure complex estates achieve the highest levels of efficiency, resilience and compliance. When integrated, these three strategies allow estates managers to deliver both capex and opex savings while meeting net zero goals.
For estates teams, the business case is clear. Air handling upgrades reduce capital costs, cut operating expenditure, eliminate compliance risks and strengthen ESG reporting. They safeguard building operations, improve indoor environmental quality and provide verifiable data to boards and investors.

Decarbonisation is no longer an abstract commitment. It is a programme of practical measures available today, with air handling at its centre. By taking a whole-estate, whole-life approach, organisations can accelerate their progress to net zero while securing financial, operational and reputational benefits.

10. Next Steps

Decarbonising air handling begins with understanding the performance of existing assets. Benchmarking airflow, fan power, leakage, heat recovery efficiency and control strategies provides the baseline against which carbon savings can be measured[8]. From there, estates managers can map a pathway that combines refurbishment, modular and bespoke solutions to suit each site.

The next step is to translate this pathway into action. For some estates this will mean targeted refurbishment of legacy plant. For others it will involve rapid deployment of modular units or the design of bespoke systems for complex environments. In every case, the process should be evidence-led, standards-based and aligned with long-term net zero goals.

Further resources, including detailed project profiles, white papers, ROI analysis tools and compliance guidance, are available through the Mansfield Pollard Resource Hub. These provide estates managers with the technical evidence needed to plan, justify and deliver air handling decarbonisation programmes with confidence.

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