

RISE

Retrofit information,
support & expertise

The Importance of Getting Ductwork and Ventilation right with ECOduct

Quick Guide

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Introduction

Good ductwork and ventilation are not just “nice to have” - they're fundamental to building performance, occupant health, safety and long-term asset efficiency. Below is a more detailed guide covering the key technical and practical reasons for getting it right from the start.

Readers that would like this document in a more accessible format should contact rise@turntown.co.uk.

What is EcoDuct?

EcoDuct is a pre-insulated, non-metallic HVAC duct system that uses precision-fabricated circular and flat oval ducts to support efficient airflow, reduced energy use and lower emissions compared with traditional metal ductwork.

HVAC systems incorporating ductwork like EcoDuct are commonly used in residential buildings, offices, schools, hospitals, commercial spaces, industrial facilities and other environments where controlled heating, cooling and ventilation are required.

Why is it important?

Protects indoor air quality (IAQ) and occupant health

Poorly designed or installed ventilation can trap pollutants inside a building. Getting ductwork right ensures the correct supply of fresh air and safe extraction of stale or contaminated air - air containing unwanted pollutants such as excess moisture, particulates, fumes, odours or harmful gases.

Effective ventilation reduces the build-up of dust, VOCs and other airborne pollutants, helps control humidity to prevent mould and damp, and supports respiratory health and occupant comfort. It is particularly important in spaces with higher pollutant sources such as workshops, kitchens and plant rooms.

Impact of getting it wrong

- Increased sickness, headaches, fatigue, and general discomfort.
- Complaints from staff or visitors.
- Non-compliance with health and safety standards.

Ensures proper temperature control & comfort

Ventilation and ductwork directly affect how efficiently heating and cooling systems operate. Correctly sized and balanced ducts distribute air evenly,



preventing hot or cold spots and maintaining comfort regardless of external conditions.

Poor installation can result in rooms that never reach the correct temperature, reduced occupant comfort and productivity, and systems running harder than necessary, wasting energy.

Maximises energy efficiency & reduces operational cost

Airflow should encounter minimal resistance within ductwork. When designed and installed correctly, duct systems enable HVAC equipment to operate efficiently, reducing energy use and carbon emissions while preventing unnecessary mechanical strain.

Issues such as air leakage, undersized ducts, excessive bends or dirty ductwork increase pressure losses, raise energy demand and lead to higher running costs.

Prolongs life of HVAC equipment

HVAC performance and reliability depend on the quality of the supporting ductwork. Correct installation maintains stable airflow, avoids excessive plant load and reduces wear and tear, helping equipment last longer and lowering long-term maintenance and replacement costs. Poor ducting increases the risk of premature equipment failure, breakdowns and reactive maintenance.

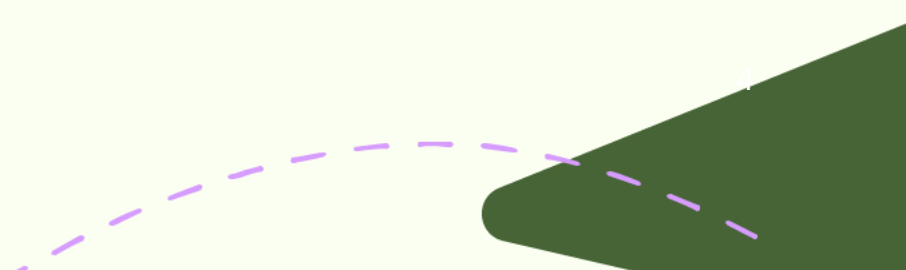
Supports regulatory, fire safety & building standards compliance

Ventilation systems are closely linked to health and safety, fire safety and building regulations. Proper ductwork helps ensure correct air change rates, safe removal of smoke, heat and contaminants, and compliance with inspection and legal requirements.

This includes correct fire damper installation and access, appropriate duct insulation and airflow rates that align with design and regulatory standards.

Reduces noise & vibration issues

Noise issues are often caused by poor duct design or installation. Correct sizing, smooth transitions and proper fixings reduce turbulence, airflow noise and vibration transfer into occupied areas. When done poorly, occupants may experience whistling, rattling and vibration, leading to complaints and a degraded working environment.



Improves system balancing and overall performance

Accurate system balancing relies on ductwork being installed in line with the design. Correct installation ensures each space receives the intended airflow, improves overall system performance and allows effective commissioning.

If incorrect, rooms may be over-pressurised or under-ventilated, leading to heat build-up and poor pollutant removal.

Reduces long-term maintenance and cleaning costs

Well-designed ductwork simplifies inspection, cleaning and servicing. Smooth internal surfaces and accessible inspection points reduce dirt build-up, contamination risk and maintenance time.

Poor workmanship often results in restricted access, frequent blockages, increased plant strain and higher maintenance costs.

Summary: Why it's worth getting right

Getting ductwork and ventilation right delivers healthier, more comfortable spaces, lower operating costs, longer-lasting equipment, simpler maintenance, regulatory compliance and a more efficient, reliable system overall.

Links to resources referenced

[EcoDuct: Energy Efficient Non-Metallic Pre-Insulated Ductwork](#)

Links to relevant RISE resources

[Low Carbon Heat Networks - RISE Toolkit](#)

[Understanding the fabric first approach - RISE Toolkit](#)

[How to achieve fabric first and no regrets - RISE Masterclass](#)



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