



Tait Road – Intro

Improving the building fabric for energy efficiency

Introduction

In August 2022 Elite acquired the Tait Road premises – a warehouse unit built in 1981 – which has been stripped out to its bare bones and retrofitted under the expert eye of RIBA Chartered Architect and Passivhaus Consultant Alida Calistru with the aim to produce a centre of excellence.

The decision to establish this groundbreaking office and showroom was made by Martyn Fowler, the chief executive and an expert in renewable energy, aiming to demonstrate that even with the limitations of older building infrastructure, it is possible to achieve a zero-carbon environment.

The facility serves as both a fully functional office and a dynamic showroom, allowing clients to witness firsthand the operation of various renewable technologies, rather than relying solely on brochures and second-hand information.

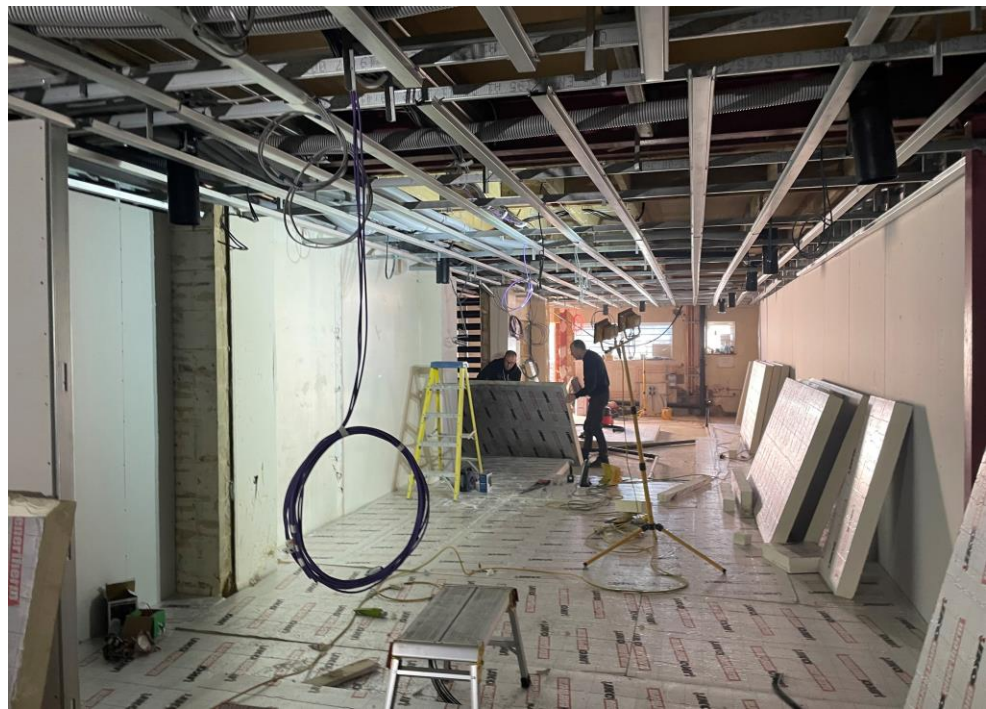
This achievement is the culmination of 20 years of experience working with diverse renewable technologies.



100%

- Walls: 100mm board insulation $U = 0.18$ W/m²K
- Roof: 150mm spray foam insulation $U = 0.15$ W/m²K
- Floors & ceilings : 100mm board and quilt insulation $U = 0.18$ W/m²K

Existing roof lights received secondary glazing U = 1.14 W/m²K



The services

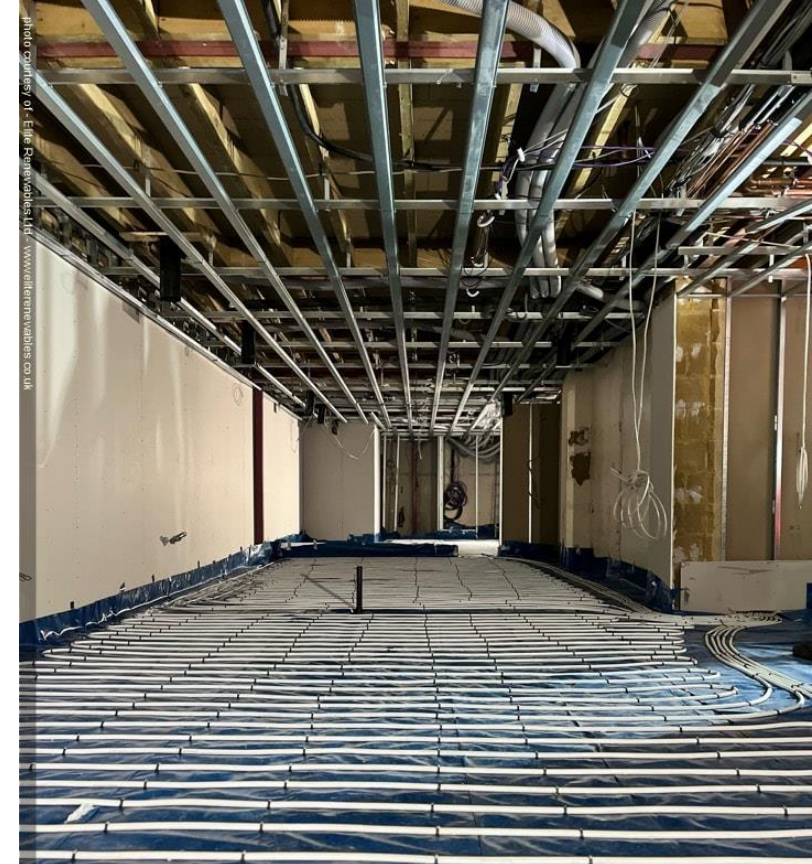
One notable feature of the Tait Road facility is its exclusive reliance on a Ground Source Heat Pump (GSHP) system.

Three boreholes, each drilled to a depth of 170m, provide complete heating, hot water, and even cooling for the office in a highly efficient manner.

The office employs underfloor heating on both floors for efficient heating, while cooling is accomplished through fan coil units that are automatically controlled. These fan coil units take advantage of the GSHP system's natural byproduct, utilising free cooling and replenishing the energy stored in the boreholes, thereby increasing sustainability.

The plantroom was designed as a feature piece and is enclosed in glass, illuminated cleverly so that it is visible to visitors.

Furthermore, an Air Source Heat Pump (ASHP) has been installed on site which although is not used to heat the premises, is functional and provides clients with a clear understanding of the space requirements but also answers concerns of noise and aesthetics.

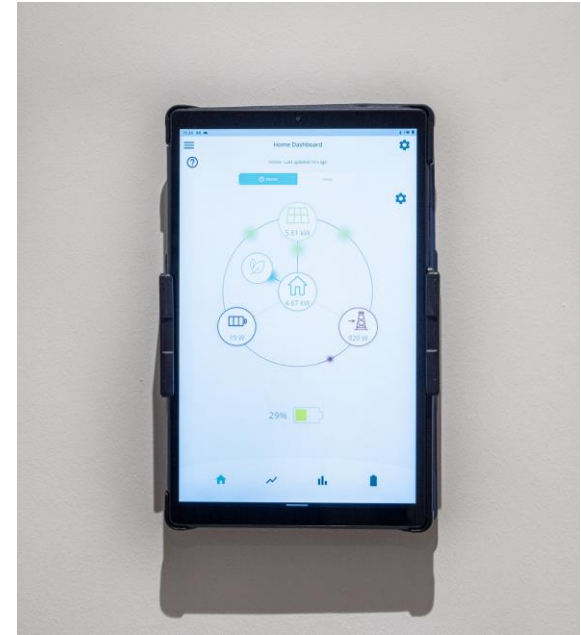
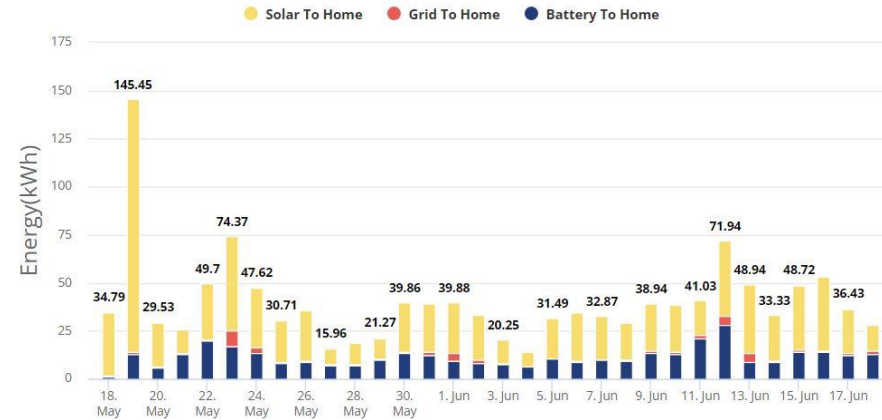
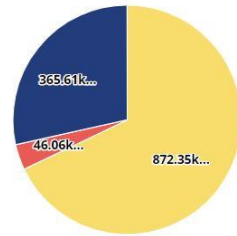


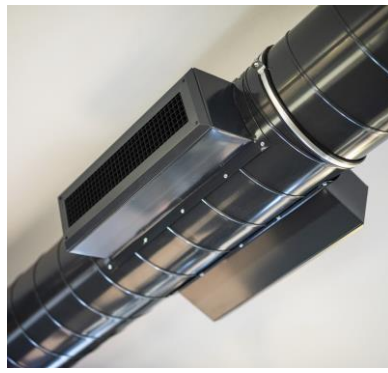


The services

66 solar panels have been installed on the roof and three battery storage systems, the facility has significantly reduced its dependence on the traditional power grid, achieving a reduction of over 95% on Grid Reliance.

Total
1284.02 kWh





The services

Recognising the importance of clean air, the Tait Road facility incorporates a Mechanical Ventilation with Heat Recovery (MVHR) unit on each floor.

This system supplies fresh, filtered air to all spaces while extracting stale air. It also features heat recovery technology to preheat or cool the replacement air, maximising overall system efficiency.



Conclusion



The building fabric improvements combined with the renewables technologies synergistically work together, creating an ideal working environment and sustainable workplace.

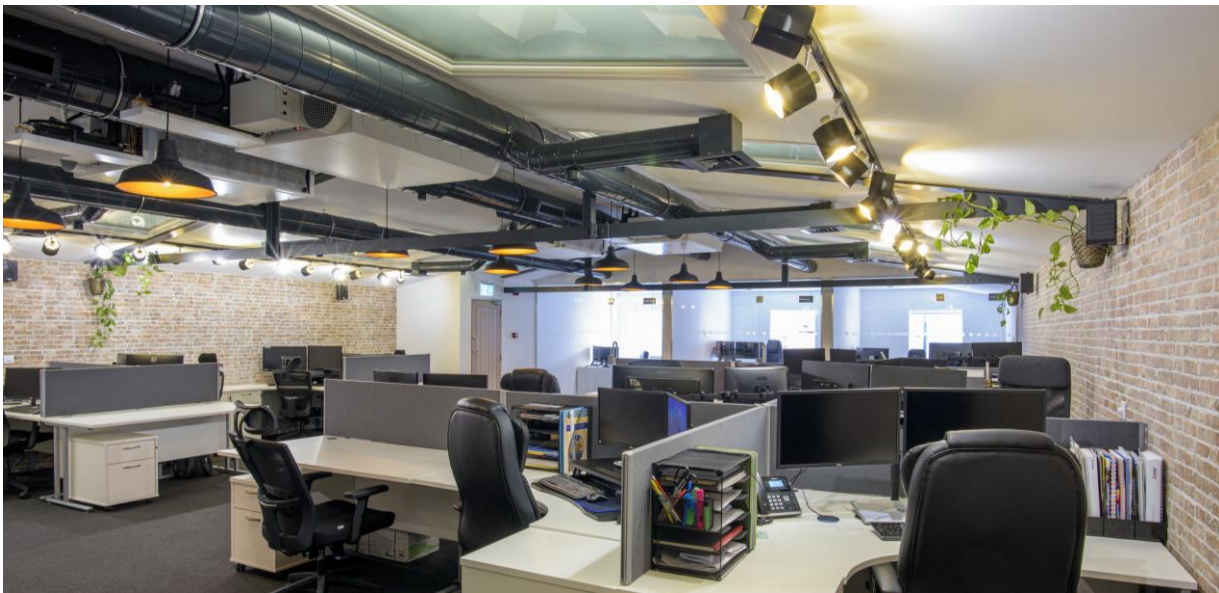
The Tait Road facility serves as a testament to the effectiveness of these technologies and demonstrates how other offices can adapt to make similar environmentally friendly changes for the benefit of the planet and its people.

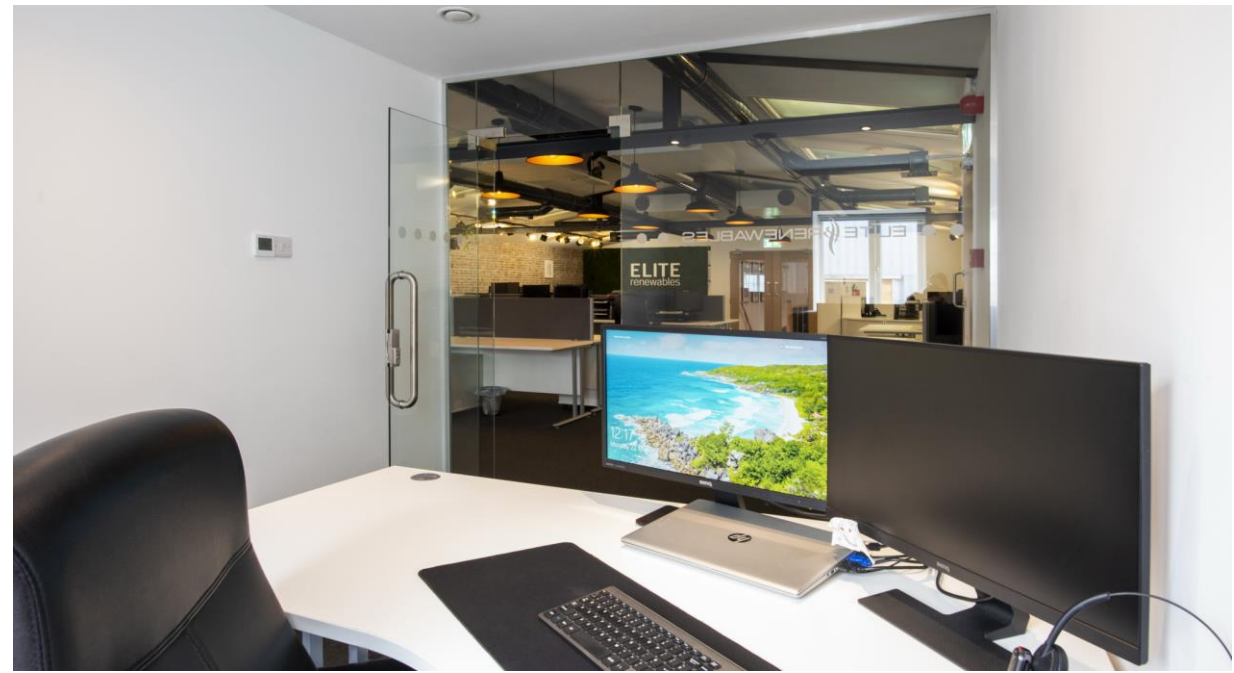
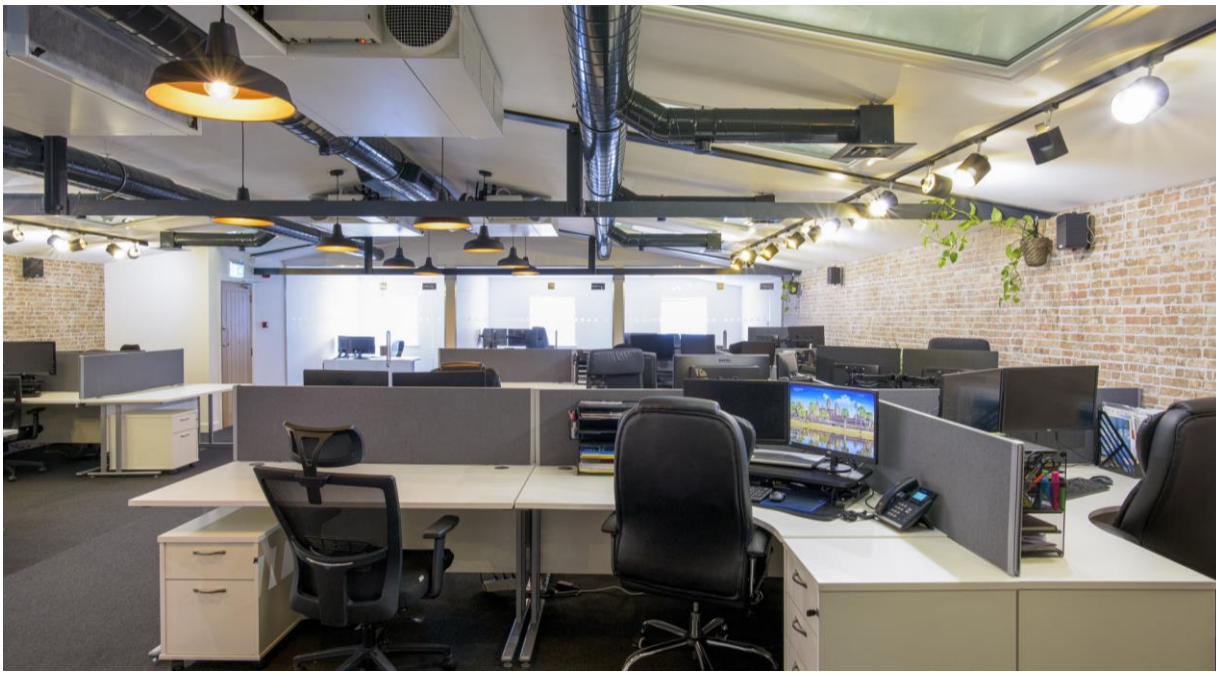
Retrofitting buildings in the UK offers several key benefits.

It **improves energy efficiency**, leading to **reduced energy consumption and carbon emissions**. This, in turn, results in **cost savings** for building owners and occupants.

It also has a **positive environmental impact**, contributing to climate change mitigation and sustainability goals. It **enhances the comfort and health** of occupants by addressing issues like insulation and ventilation.

The UK government has implemented policies and initiatives to support and incentivise retrofit projects. However, specific outcomes may vary depending on project characteristics.













Thank you for your time