

Case Study –
Housing Development
Leytonstowe



Project Overview:

Bespoke Acoustic Solutions (BAS) was successfully appointed to supply and install a large number of Domestic Heat Air Source Heat Pump Enclosures for a housing development project. With a growing trend towards using heat pumps as an alternative heat source to domestic gas boilers due to their energy efficiency and reduced carbon footprint, there is a pressing need to address noise levels produced by these units, especially during night operation.



Bespoke Acoustic Solutions Limited

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Registered in England No. 10866964.



Design Criteria:

1. **Noise Reduction:** The primary goal was to reduce the noise contribution from domestic heat pumps to acceptable levels for residential properties, ensuring minimal disturbance to residents.
2. **Enclosure Pressure Drop:** It was imperative to design the enclosures with minimal pressure drop to ensure that the added resistance did not significantly affect the design airflow rates of the heat pumps. The pressure drop needed to be below the available external static pressure of the heat pump fan units to maintain optimal performance.



Engineering Solutions:

1. **Acoustic Design:** BAS engineered the Domestic Heat Air Source Heat Pump Enclosures with specialized acoustic materials and design features to effectively attenuate noise emitted by the heat pumps. This included the use of sound-absorbing materials and strategic placement of acoustic panels to minimize noise propagation. The enclosure has been tested at Salford University to obtain the acoustic performance in a UKAS accredited laboratory.
2. **Airflow Optimization:** The enclosures were designed to ensure minimal pressure drop, allowing for unimpeded airflow to the heat pump units. BAS conducted extensive airflow simulations and calculations to optimize the enclosure design, ensuring that the added resistance did not hinder the performance of the heat pumps



Manufacturing and Installation:

BAS leveraged advanced manufacturing techniques to produce the Domestic Heat Air Source Heat Pump Enclosures to exact specifications. Each enclosure was carefully fabricated and assembled to meet the unique requirements of the housing development project. Installation was carried out efficiently and effectively, ensuring seamless integration with the existing infrastructure.

**Operational Success and Client Satisfaction:**

The Domestic Heat Air Source Heat Pump Enclosures successfully mitigated noise levels from the heat pumps, providing residents with a quieter living environment. Additionally, the optimized design ensured minimal pressure drop, maintaining optimal airflow rates for the heat pump units. The client expressed satisfaction with the performance of the enclosures, appreciating BAS's commitment to delivering high-quality solutions that meet the specific needs of residential projects.

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**Conclusion:**

Bespoke Acoustic Solutions' Domestic Heat Air Source Heat Pump Enclosures offer an effective solution for reducing noise levels from heat pumps in residential properties while ensuring optimal airflow performance. With a focus on noise reduction and airflow optimization, these enclosures provide a seamless integration with housing developments, enhancing the overall living experience for residents. As the demand for energy-efficient heating solutions continues to rise, BAS remains dedicated to delivering innovative acoustic solutions that meet the evolving needs of the housing market.

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