



INTELLIGENT MEMBRANES

WHITE HAUS TIMBER FRAME

**HIGH-PERFORMANCE
BUILD-CROYDEN**

**PASSIVE PURPLE INTERNAL & PASSIVE
PURPLE EXTERNAL**

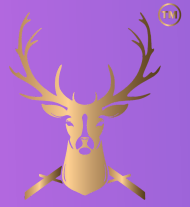


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Building Performance from the Ground Up

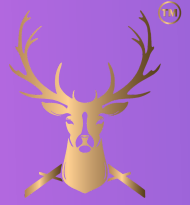


This Croydon-based timber frame project set out to achieve more than just compliance, it aimed to deliver a high-performance, future-ready home with exceptional airtightness, energy efficiency, and long-term durability.

Through a carefully planned approach and the application of Intelligent Membranes' Passive Purple system, the project demonstrates what can be achieved when modern materials meet precision detailing.



The Challenge: Achieving True Airtightness



Timber frame construction presents unique challenges when it comes to airtightness:

- Multiple junctions and connection points
- Risk of air leakage through gaps, seams, and service penetrations
- Requirement for a continuous, uninterrupted airtight layer
- Need for additional protection against moisture ingress and radon gases

Traditional methods often rely on tapes and membranes that struggle to maintain consistency across complex details, increasing the risk of performance gaps.

The Approach: A Fully Integrated Airtight Envelope

To overcome these challenges, a dual-layer Passive Purple system was specified:

External Protection

Passive Purple External Brush was applied to all:

- Joints
- Junctions
- Structural connections

This ensured a weathertight and airtight external barrier, sealing potential weak points before they could become issues.

Application Process

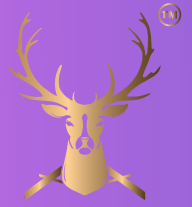
Intelligent Membranes' specialist team applied Passive Purple External Brush (a fibre-reinforced liquid membrane) to all external joints, junctions, window and door perimeters, and areas of potential air leakage. This ensured all critical detailing points were fully sealed prior to the main application.

Passive Purple External was then applied across the external surfaces using an airless spray device, creating a seamless, fully bonded membrane across the building envelope.

Application was carefully coordinated with follow-on trades to prevent damage and maintain airtight and weatherproof integrity throughout the construction process.



Internal Airtightness Layer



A continuous application of Passive Purple Internal Airtight Vapour Control Membrane created a seamless internal envelope.

Unlike traditional sheet membranes:

- It flexes with the building structure
- Bonds directly to substrates
- Seals even the most awkward junctions with ease



Airtightness, Done Right

Airtightness is one of the most critical elements in delivering a high-performance building.

By utilising a liquid-applied system, this project achieved:

- Complete continuity of the airtight layer
- Elimination of gaps, overlaps, and weak joins
- Reliable performance across all junctions and penetrations

As the saying goes:

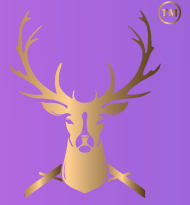
“Once it’s covered, you can’t see it, but you’ll definitely feel the difference.”

The Results: Exceeding Expectations

Airtightness Result: 0.17 ACH

This exceptional result:

- Far exceeds standard building regulations
- Enters Passivhaus-level performance territory
- Demonstrates the effectiveness of a fully sealed building envelope



Proof That High Performance is Achievable

This project highlights a key message:

High-performance construction doesn't need to be complicated; it just needs the right system.

With the correct products, proper detailing, and a coordinated approach, achieving outstanding airtightness is not only possible, it's repeatable.

Performance Benefits

- Significantly reduced heat loss
- Lower energy demand and running costs
- Improved internal comfort year-round
- Enhanced durability of the building fabric
- Protection against air leakage, moisture, and radon



Client Feedback

“Not a radiator in sight, and I love it! We’re consistently warmer and more comfortable in general. Warm in the winter and cool in the summer. What’s not to like?”



Start Your Next High-Performance Build

Inspired by this project?

Whether you're working on a new build, retrofit, or Passivhaus project, Intelligent Membranes can help you achieve outstanding results.

Intelligent Membranes

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