



# INTELLIGENT MEMBRANES



**ASHE**  
building  
better

# ASHE CONSTRUCTION

**BEDFORD ACADEMY**

**PASSIVE PURPLE**

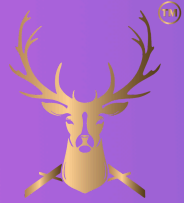
BEDFORD BOROUGH COUNCIL  
GSS architecture



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## Ashe Construction & Bedford Academy

Bedford Borough Council awarded the contract to Ashe Construction for a major extension project at Bedford Academy.

The 60-week project saw the construction of 16 classrooms, changing rooms, a dining area and a community café. The school, located on Mile Road, currently has 1,350 pupils on roll.

The extension will allow the school to accommodate an additional 300 children as part of a phased growth plan to 1,800 pupils by 2029, making it one of the largest secondary schools in Bedford Borough.



The new classrooms were designed to provide bright, safe and functional learning environments with integrated ICT facilities.

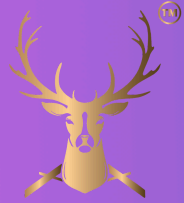
Student feedback was incorporated into the room layouts, enabling teachers to move freely around classrooms while maintaining close interaction with pupils and easy access to digital teaching resources.



The Academy's new extension, designed by GSS Architecture, will create versatile multi-use spaces that will provide a community hub outside school learning hours. A landscaped external terrace area will enable some classrooms to open directly to outdoor spaces. The facilities will also be available for hire by community groups, including sports clubs, faith groups and dance schools.

A flexible multi-use space including a kitchen, dining hall and community café with Wi-Fi will be available to parents and visitors during evening and weekend activities, with capacity for up to 300 people.





## Building Performance Goals

The two-storey extension was designed to operate to high energy-efficiency standards, achieving low U-values and minimising heat loss through the building envelope.

Ashe Construction selected Passive Purple from Intelligent Membranes for application to the warm side of the external walls, providing the airtightness required to meet Net Zero Carbon in Operation standards.



**Bedford Borough Council 'Ashe Construction will use a special product to coat the building'**

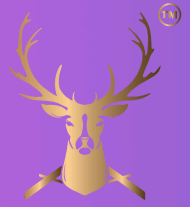


The building incorporates photovoltaic solar panels to maximise renewable energy generation, while air source heat pumps provide heating throughout the facility. Mechanical ventilation with heat recovery (MVHR) units are installed within ceiling voids and connected to façade louvres, enabling controlled air movement throughout the building. Heat recovered from extracted air is used to warm incoming fresh air during colder months, improving overall energy efficiency.



**Chris Dellar, Headteacher at Bedford Academy, said:**

**"We are making the most of this opportunity to provide new sustainable facilities for our school, our children and our community."**

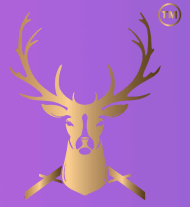


## Technical Execution

The Bedford Academy project presented a highly technical challenge, requiring a precision-led approach to achieve the airtightness and moisture control standards expected by Ashe Construction.

Intelligent Membranes supplied a range of specialist airtightness and waterproofing products, each selected for specific areas of the building envelope. Successful delivery required the integration of multiple systems to create a robust and continuous airtight layer.





## IMAF Tape (Intelligent Membranes Airtight Fleece)

One of the cornerstones of the airtightness strategy was IMAF Tape, a highly flexible fleece-backed airtight tape designed to bridge larger gaps and bond to challenging substrates, including masonry, timber, steel and uneven substrates.

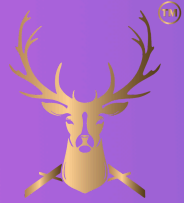
This product was critical around complex junctions like wall-to-roof interfaces and window reveals, steels, and cement particle boxings where movement and substrate variation can threaten airtightness.



Multiple widths of IMAF Tape, including 75mm, 100mm, 150mm and 200mm variants, were used throughout the project to maintain airtight continuity.

### Key Benefits:

- Strong adhesion - bonds to timber, brick, concrete, and membranes
- Fleece-backed - can be plastered or painted over seamlessly
- Flexible & durable - ideal for corners, joints, and penetrations
- Weather resistant - suitable for long-term performance
- Energy saving - supports airtightness targets for low-energy and Passivhaus builds

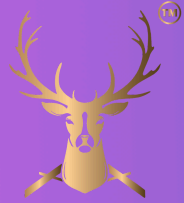


## Passive Purple Brush

Passive Purple Brush, a fibre-reinforced variant of Passive Purple, was used in all detailed, high-risk areas- such as pipe penetrations, beam ends, floor-to-wall, wall-to-steel, OSB joints and mechanical fixings.

This thick, manually applied liquid membrane was crucial for sealing irregular surfaces and changes. Its fibre-reinforcement allowed for a level of crack-bridging and durability essential for long-term performance.



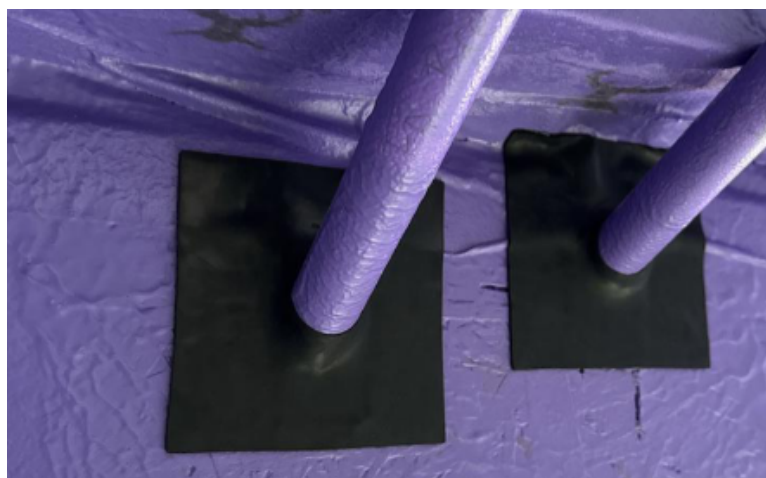


## Waterproof Blue Liquid DPM

In areas where rising damp posed a risk, or where no damp-proof membrane was originally present, Intelligent Membranes applied Waterproof Blue Liquid DPM.

This high-performance product served as both an air and vapour control layer and a waterproof coating beneath multiple door thresholds throughout the project.

Its application ensured substrate protection while maintaining continuity of the airtight layer.



## Airtight Grommets for Cables and Pipes

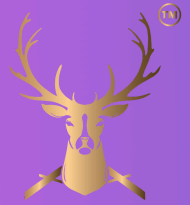
Cabling and service penetrations are notorious weak points in building envelopes.



To address this, Intelligent Membranes used their proprietary airtight grommets, specifically engineered to create airtight seals around pipes, electrical cables and conduits.

These grommets not only simplified the process of detailing service penetrations but also ensured repeatable, variable airtight seals without relying on makeshift solutions.

## Central Role of Passive Purple

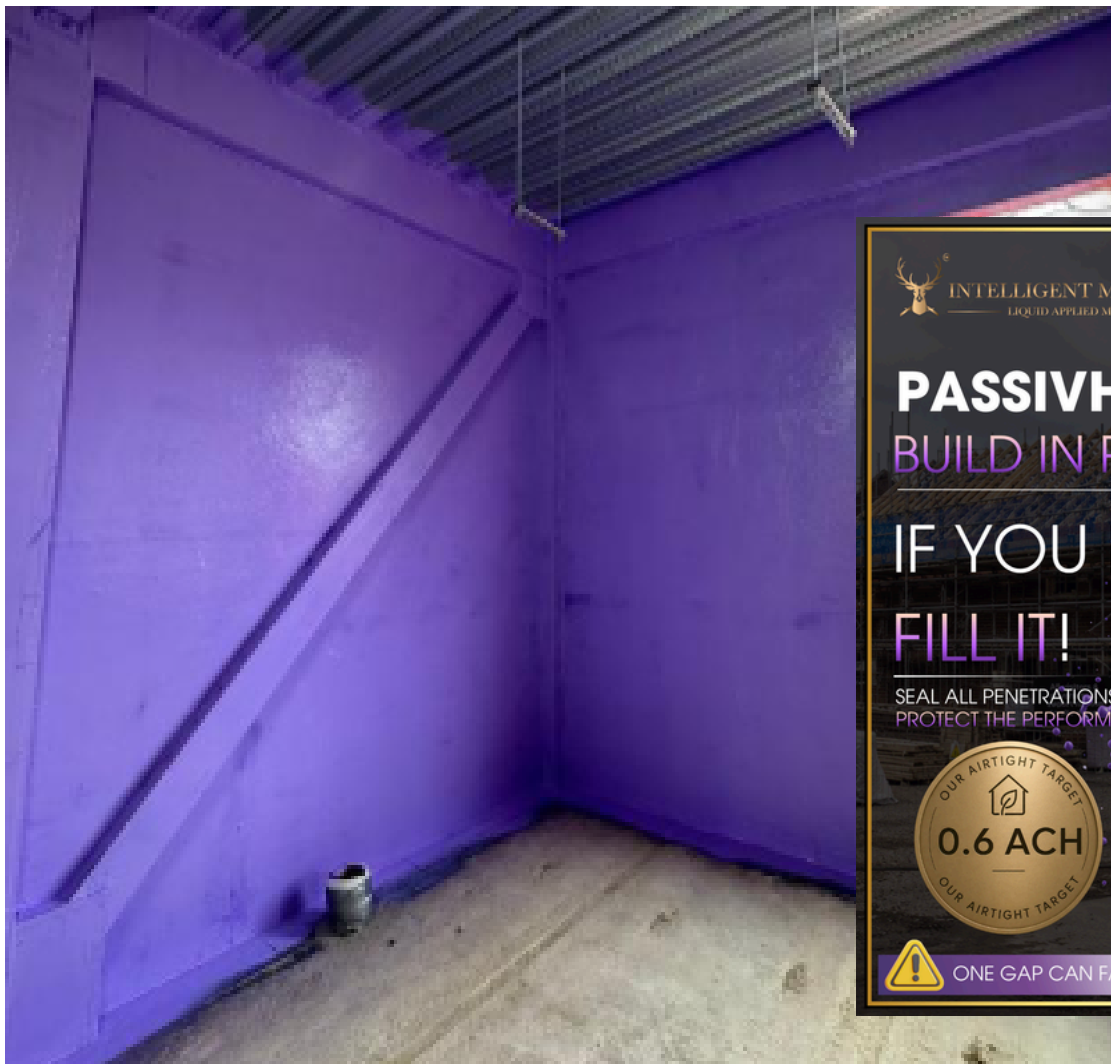


At the heart of the airtightness strategy was Passive Purple, Intelligent Membranes' flagship liquid-applied airtight vapour control membrane.

Its adaptability made it suitable for application across a wide range of substrates, including:

- Masonry
- Timber
- Plasterboard

Applied by spray or roller, Passive Purple created a continuous, seamless and flexible membrane that eliminated many of the weak points commonly associated with traditional tapes and sheet membranes.



INTELLIGENT MEMBRANES  
LIQUID APPLIED MEMBRANES

PERFORMANCE GUARANTEED

**PASSIVHAUS**   
**BUILD IN PROGRESS**

**IF YOU DRILL IT,  
FILL IT!**

SEAL ALL PENETRATIONS  
PROTECT THE PERFORMANCE

OUR AIRTIGHT TARGET  
**0.6 ACH**  
OUR AIRTIGHT TARGET

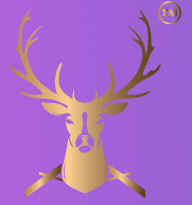
Did you know?  
Passive houses report an average of 90% energy savings compared with conventional homes.

⚠️ ONE GAP CAN FAIL THE TEST

f @ p y in X

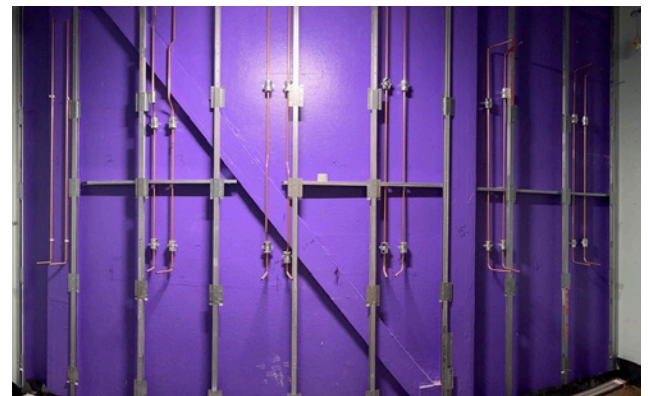


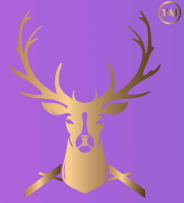
## Summary of Coordination and Detailing



Delivering the airtightness strategy required a carefully coordinated workflow:

- Substrates were prepared and cleaned.
- Waterproof Blue Liquid DPM was applied in moisture-prone areas.
- IMAF Tape was installed at key junctions.
- Passive Purple Brush was used to detail difficult areas and penetrations.
- Large wall areas were coated with Passive Purple Internal to create a continuous airtight layer.
- Airtight grommets were installed to permanently seal service penetrations.





## Project Results

Ashe Construction's implementation of Intelligent Membranes' airtightness system at Bedford Academy demonstrates a commitment to sustainability, energy efficiency and occupant wellbeing.

The project showcases Passive Purple not simply as a product, but as part of a complete airtightness system, integrated with IMAF Tape, Waterproof Blue Liquid DPM and airtight grommets.

## Results

### Achieved Airtightness

The project achieved an impressive airtightness result of **0.43 air changes per hour (ACH)**, significantly exceeding standard building requirements.



### Long-Term Durability

The robust nature of the Intelligent Membranes system provides long-term protection against environmental factors, helping safeguard the building's performance for years to come.

This integrated approach enabled Ashe Construction to exceed airtightness targets and deliver a building envelope that meets the highest standards of modern building performance and durability.

