INTELLIGENT MEMBRANES

DARWIN GROUP

DarwinGroup®

MAGNA MEDICAL CENTRE, RACKHEATH

PASSIVE PURPLE & PASSIVE PURPLE BRUSH

01223 208 174

Info@intelligentmembranes.co.uk

Building Better Healthcare

Originally referred to as Rackheath Medical Centre during its development, Magna Medical Centre is an £11 million purpose-built healthcare facility in Rackheath, near Norwich, designed to support the long-term healthcare needs of the area's growing community.

The centre was designed to bring primary medical and community healthcare services together within a modern, purpose-built environment, providing high-quality spaces for patients and healthcare professionals.

Behind the finished walls of Magna Medical Centre lies another important part of the project: a high-performance building envelope with exceptional airtightness at its core.

Healthcare Construction Specialists

The Magna Medical Centre project was delivered by Darwin Group, specialists in modular healthcare construction.

Darwin Group specialises exclusively in healthcare, working alongside the NHS and other healthcare organisations to design and deliver facilities around the needs of patients, clinicians and modern healthcare estates.

Their approach combines healthcare-focused design with modern methods of construction (MMC), allowing substantial elements of a building to be manufactured within controlled factory environments before being transported and assembled on site.

Darwin Group has designed and delivered hundreds of MMC projects from its UK manufacturing facility, with its healthcare buildings benefiting patients across the country.

For Magna Medical Centre, this experience in healthcare and modular construction provided the foundation for a project where speed, quality, sustainability and long-term building performance were all important considerations.

Modern Methods for Modern Healthcare

Rather than relying solely on traditional construction methods, modern methods of construction (MMC) played a central role in the delivery of Magna Medical Centre.

The building structure was manufactured off-site using volumetric modular units before being transported to Norfolk and assembled on site.

Once the individual modules were positioned and connected, work could progress on creating a continuous building envelope, followed by the remaining internal services and external works.

Off-site construction can help reduce the amount of work required on site while providing greater control over the manufacturing process.

For Magna Medical Centre, this approach formed part of a wider strategy to create a modern, efficient and high-performance healthcare facility.

The Airtightness Challenge

Creating a high-performance modular building requires more than simply making each individual module airtight.

Once separate building elements come together, junctions and connections become critical.

Wall-to-ceiling connections, structural steels, joints, penetrations and transitions between different construction materials can all become potential routes for uncontrolled air leakage.

For the airtightness strategy to succeed, these areas required careful preparation and detailing to create continuity throughout the building envelope.

This is where the Intelligent Membranes system came into its own.

Passive Purple Brush is a fibre-reinforced, liquid-applied airtight membrane designed for detailed airtightness work. Applied with a simple paintbrush, it creates a permanent, seamless vapour-control layer that seals tricky gaps and penetrations where spraying or rolling is difficult.

Where the Details Make the Difference

Before the main airtight membrane was installed, particular attention was given to the building's critical junctions.

Airtight Fleece Tape was installed around connection steels and joints, helping maintain the airtight layer where different elements and construction materials met.

Passive Purple Brush was used to treat detailed areas and complex junctions requiring additional attention.

These seemingly small areas can have a significant effect on the final airtightness performance of a building.

Treating them correctly before the wider membrane application helped create the continuous airtight envelope required for the project.

3,500m² in Just Two Days

Once the critical details had been addressed, attention turned to the wider building envelope.

Passive Purple Internal, Intelligent Membranes' liquid-applied airtight vapour control membrane, was applied across the building, creating the distinctive continuous purple airtight layer visible throughout the construction photographs.

Across just two days, approximately 3,500m² of Passive Purple Internal and Passive Purple Brush was installed.

For a large-scale modular project, the liquid-applied system provided an effective way of creating continuity across extensive areas while accommodating the numerous junctions and interfaces created when the individual modules came together.

The result was a seamless airtight layer designed to work across the building as a complete system.

Why Airtightness Matters in Healthcare

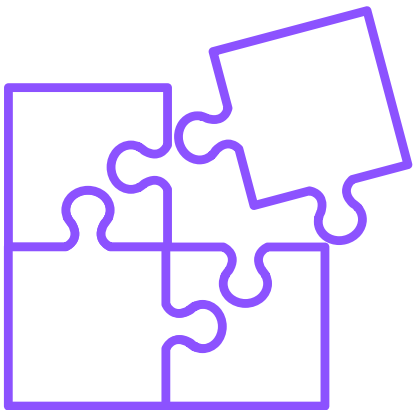
Healthcare facilities have particularly demanding operational requirements.

Internal environments need to remain comfortable and controlled while services may operate for extended periods throughout the day.

Uncontrolled air leakage can increase heating and cooling demand, undermine thermal performance and make maintaining consistent internal conditions more difficult.

A carefully designed airtight envelope helps minimise these unintended air paths and supports the overall energy performance of the building.

At Magna Medical Centre, airtightness therefore wasn't simply another stage of construction. It formed part of a wider approach to creating a comfortable, efficient and high-performance healthcare environment.



Putting Performance to the Test

The true performance of an airtightness strategy becomes clear when the completed building envelope is tested.

Air testing measures uncontrolled air leakage through the building envelope and provides an indication of how effectively the walls, ceilings, junctions, penetrations and structural connections have been sealed.

For a modular building, where numerous individual elements ultimately come together to form one structure, achieving continuity across those connections is particularly important.
And the result achieved at Magna Medical Centre was exceptional.

An Exceptional 0.2 ACH

The project achieved an impressive airtightness result of just 0.2 ACH (air changes per hour).

This demonstrates the extremely high level of airtightness achieved across the modular building envelope and the effectiveness of the preparation, detailing and liquid-applied airtightness system.

From individual structural connections and junctions through to approximately 3,500m² of membrane application, each stage contributed towards creating one continuous airtight layer.

The result demonstrates what can be achieved when modern modular construction and carefully considered airtightness detailing work together.