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MEMBRANES**



# MORGAN SINDALL

**REUBEN COLLEGE, OXFORD**

**AIRTIGHT WHITE**

University of Oxford  
FJMT Studio (Architects)



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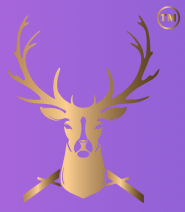
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Reuben College, the University of Oxford's newest graduate college, embarked on a £45 million redevelopment of the Grade II listed Radcliffe Science Library (RSL) to create state-of-the-art facilities for interdisciplinary research. The project aimed to provide fully accessible, flexible spaces for the college's Common Room, quiet study areas, group meeting rooms, and a large dining hall. Additionally, the two-level basement was refurbished to serve as a high-quality storage and teaching facility for museum collections.



# “High performing airtight basements”



A critical aspect of this redevelopment was the creation of high-performance, airtight basement spaces designed for sensitive archival storage and teaching. The lower basement level required an airtight score of  $0.6\text{m}^3/\text{h}\cdot\text{m}^2$  @ 50 Pa or less, with a sub basement within itself requiring even more demand for absolute airtightness at a score of  $0.3\text{m}^3/\text{h}\cdot\text{m}^2$  @ 50 Pa or less



Morgan Sindall Construction partnered with Intelligent Membranes to implement a bespoke airtightness solution using Airtight White, a cutting-edge product designed specifically for high-performance subterranean environments.

## Why Airtight White Was Chosen

Airtight White is a liquid-applied vapour control membrane that delivers:

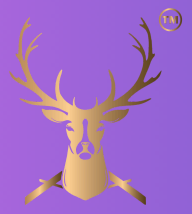
- Exceptional airtightness: Independently tested and certified Passivhaus Component A to  $0.034\text{ach}$ . Almost 20x better than Passivhaus requirements.
- Moisture and mould resistance: Vital for basements housing delicate archives.
- Seamless application: No joints, seams, or weak spots typical of traditional membranes.
- White finish: Ideal for low-light, visible internal spaces (e.g. storage, teaching), creating a clean, bright internal aesthetic.



## Application Process

- Intelligent Membranes' specialist team applied Airtight White via airless spray to the entire internal basement structure, including walls, soffits, and service penetrations.
- Detailing around complex junctions (e.g., beams, service routes, vaults) was carefully managed to maintain full continuity.
- Application was coordinated with follow-on trades to avoid damage and ensure airtight integrity.





## Results, Performance & Awards

Airtightness tests of the basement achieved results well below both the required limits, supporting the overall building performance strategy.

The basement spaces now benefit from:

- Stable humidity and air pressure control.
- Improved energy efficiency, with reduced heating/cooling loads.
- Enhanced protection for sensitive collections and museum-grade teaching spaces.

Morgan Sindall Construction's use of Airtight White by Intelligent Membranes at Reuben College set a new standard for subterranean airtight performance in heritage buildings. This case study showcases how modern liquid-applied membranes can revolutionise basement construction, even in the most challenging and sensitive contexts.

Thanks to the hard efforts of the main contractor and Sub-contractors involved and the high demand of attention to detail with the airtight strategy, including the use of Airtight White, all contributing significantly to the project winning the **Low Carbon Project of the Year at the 2024 OxProp Awards**, a testament to the successful fusion of heritage preservation and modern environmental design.



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