

CASE STUDY



Client: CAMBRIDGE CITY COUNCIL
Product: MODUS
Fabricator: ASSET FINELINE

The UK's First Fully Closed-Loop PVC-U Recycling Project Delivered for Cambridge City Council

- **Near-EnerPHit Standards:** Retrofitted 46 homes for high energy efficiency and airtightness
- **Closed-Loop Recycling:** Fully recycled PVC-U windows, reducing waste and embodied carbon
- **Triple-Glazed Modus Windows:** Installed to lower heat loss and support thermal performance
- **Enhanced Resident Comfort:** Delivered warm, efficient homes, meeting Net Zero energy targets

Challenge

Cambridge City Council aimed to retrofit 46 homes to near-EnerPHit standards, which focus on enhancing energy efficiency by improving insulation, airtightness, and ventilation. Near-EnerPHit closely aligns with the EnerPHit standards set by the Passivhaus Institute, targeting minimal energy use for heating and cooling in existing properties.

This initiative supports the council's goal of achieving Net Zero Operational Energy, where energy consumption equals renewable energy produced on-site, as part of the UK Government's £3.8 billion Warm Homes: Social Housing Fund.

Cambridge City Council had the complex challenge of implementing high-performance energy solutions while balancing sustainability, affordability, and timely delivery. A key challenge was selecting materials that met strict criteria for low embodied carbon and recyclability, all while ensuring the comfort and well-being of residents.

"This project serves as a prime example of how effective collaboration can lead to the successful delivery of high-quality, energy-efficient solutions. It showcases that we can meet and exceed expectations without compromising on budget or timelines, ultimately benefiting both our clients and the environment."

Darren Sowter
Divisional Director at Asset Fineline

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Solution

Cambridge City Council partnered with Eurocell, Aran Insulation, Asset Finline, and Saint-Gobain to mobilise the UK's first fully closed-loop PVC-U recycling project. Eurocell's Modus 75mm profile system achieving a U-Value of 0.8 triple glazed windows were a cornerstone of the thermal upgrades, significantly reducing heat loss and helping the homes meet strict energy efficiency targets. The windows were specified for their high thermal performance and their ability to be recycled at the end of their lifespan, with the PVC-U frames being reprocessed into new window profiles.

The closed-loop recycling process, implemented by Eurocell and Asset Finline, meant the old PVC-U windows, once removed, were collected, recycled, and manufactured into new frames.

This approach significantly reduced waste and embodied carbon, aligning with the project's sustainability goals. Saint-Gobain supported the project through its Glass Forever program, recycling end-of-life glass and producing high-performance glazing to complement the Modus window systems.

Aran were appointed by Cambridge City Council as Principal Contractor for their SHDF Wave 2.1 programme. As a Principal Contractor, Aran works with a high-quality local supply chain, supporting their commitment to social value. Aran appointed Asset Finline to cover all their window and door requirements, including recycling the old glass sealed units. Recently, Aran's Operations Director, Craig Thomson, visited homes included in the project and reported: "The consistent and superior finish across the project is some of the best work I have ever seen. The quality control, provided by our team, and co-operation on site demonstrates the whole team are working well together."

Outcome

The retrofitted homes now meet near-EnerPHit energy standards, offering warmer, more comfortable living environments for residents while reducing energy costs. By integrating a closed-loop recycling process, the project minimised its carbon footprint, supporting Cambridge City Council's sustainability strategy. The collaboration between Eurocell, Aran Insulation, Asset Finline, and Saint-Gobain ensured the project was delivered on time and within budget, setting a new benchmark for energy-efficient social housing retrofits.

ECD Architects, working with Cambridge City Council to deliver this retrofit, noted: "With a target of Net Zero Operational Energy, this pilot project aims to improve resident wellbeing through comfortable, warm, and healthy homes that are energy efficient and affordable to heat. The thermal upgrade includes external wall insulation, roof insulation, suspended floor insulation, Modus triple-glazed windows and patio doors, and a high level of airtightness throughout. The Modus windows were entered into the Passivhaus Planning Package (PHPP), and their thermal performance proved crucial in meeting the homes' overall heat demand targets."

Kelly Hibbert, Head of Commercial Sales at Eurocell, stated: "This project exemplifies the environmental and operational advantages of a closed-loop recycling system. It underscores Eurocell's commitment to advancing sustainability while delivering high-performance, energy-efficient solutions. This collaboration serves as a benchmark for future social housing initiatives."

Darren Sowter, Divisional Director at Asset Finline, highlighted the importance of teamwork: "This project serves as a prime example of how effective collaboration can lead to the successful delivery of high-quality, energy-efficient solutions. It showcases that we can meet and exceed expectations without compromising on budget or timelines, ultimately benefiting both our clients and the environment."

