

Case Study

Barking & Dagenham College



Barking & Dagenham College

The Client

Barking & Dagenham College has long been recognised for its strong technical and vocational training and is now accelerating its green skills offer through the new Smart Construction Centre in the East London Institute of Technology.

To continue meeting demand and drive momentum, the college has made further investment into Green Skills by opening their brand new Retrofit Training Facility at the Rush Green Campus.

Located in East London at the gateway to the Thames Estuary and serving over 12,000 students each year, the college is uniquely placed to connect diverse communities with the green jobs of the future, blending innovation, inclusivity, and strong industry partnerships to meet regional and national skills demands.



The identified space (pre-installation) during Quantum's site survey with BDC's Estates team at the start of the SDF Project

The Engagement

In 2022, Barking & Dagenham College invested through the Government's Strategic Development Fund (SDF) to install three air source heat pump bays and three solar photovoltaic bays, laying the foundations for its green skills provision. This was expanded in 2025 with further support from the Local Skills Improvement Fund (LSIF), aligned with Local London's LSIP focus on green construction and digital innovation.

To build on this momentum, the college sought to establish a Retrofit Training Centre equipped with energy efficiency training bays covering air tightness testing, external wall insulation, and other core retrofit techniques. Alongside the earlier low-carbon bays, these facilities will give learners a rounded, hands-on understanding of modern retrofit.

Based just a few miles from Quantum's headquarters at CEME Innovation Centre in Rainham, our geographical proximity allowed for a uniquely close working relationship in the delivery of these projects. As their local renewables experts, we supported both the SDF and LSIF projects, providing specialist equipment, tailored learning resources, and staff training to bring their green skills vision to life.

Building a Low Carbon Facility

Three Air Source Heat Pumps (ASHP) Training Bays

Barking and Dagenham College's Estate team built the bay structures, and Quantum installed the low carbon technologies in 3 distinct training bays:

- 1) Working Bay – For tutors to teach in
- 2) Installation & Maintenance bay – For students to carry out practical tasks
- 3) Fault Finding Bay – For students to identify components and fault find

These bays give students direct access to one of the UK's fastest-growing low-carbon heating technologies. Learners can engage with the full lifecycle of an ASHP system, from installation and maintenance to performance optimisation. With demand for heat pump installers rising, these bays provide essential practical learning for future heating engineers.



Three Electrical Ecosystem Training Bays

Quantum installed another low carbon technology set in 3x additional bays. Designed for hands-on learning, these bays support skills development in electrical systems that integrate solar PV, battery storage, and EV charging. These technologies are vital to the UK's green energy transition, and this space allows students to understand how they work in real-world contexts.

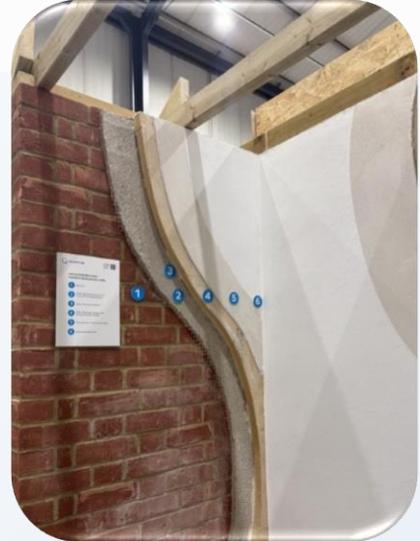


Building a Retrofit Training Facility

Four Wall & Floor Bays Installed for EWI, IWI & Suspended Floor Insulation

Our purpose-built bays give learners the chance to master External Wall Insulation (EWI), Internal Wall Insulation (IWI), and suspended floor insulation. We've installed full demonstration sections of EWI and IWI using both standard and sustainable products to ensure students have the awareness of sustainable insulation alternatives. These visual teaching aids allow learners to see best-practice techniques before applying their skills in their own training bays.

Our design covers real-world applications on both solid brick and timber structures, ensuring learners are prepared for any project.



One Ventilation & Air Tightness Testing Bay

This bay features centralized and decentralized MVHR systems with a blower door for air tightness testing, teaching key retrofit skills for ventilation, moisture control, and damp prevention.

Learners also have a chance to perfect their skills in air tightness taping techniques using a Desktop Airtightness Practice Unit, which is a classroom-based product designed by us to help refine skills related to taping and sealing.



Building a Retrofit Training Facility

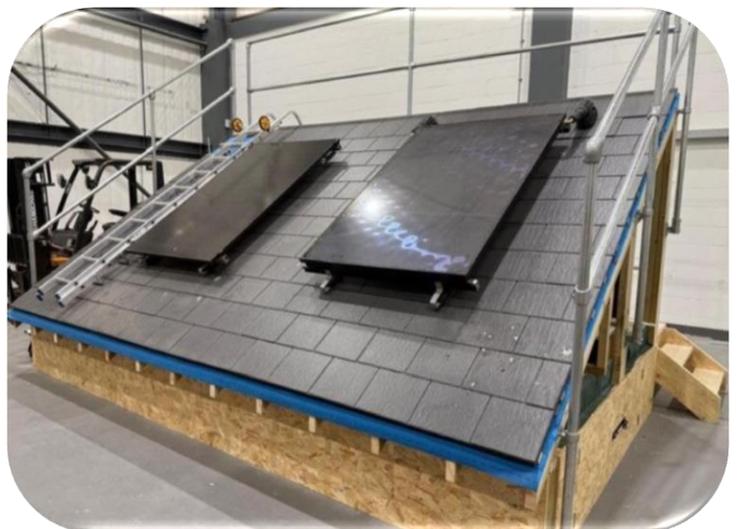
One Floor Mounted Pitched Warm Roof

The warm roof is a pitched clay-tiled structure, designed to replicate modern new builds constructed to Future Homes Standards. Built with warm roof insulation, it demonstrates how insulation is applied above the rafters to create a continuous thermal layer, improving energy efficiency and reducing heat loss. The structure is also fitted with a metal safety railing to support harnesses, enabling students to undertake working at heights training safely. In addition, the structure provides opportunities to practice mounting solar panels and ventilating the roof, giving learners a rounded, practical understanding of the key skills needed for work on both current and future housing stock.



One Floor Mounted Pitched Cold Roof

The cold roof is a pitched slate-tiled structure, representing the housing stock built between the 1930s and 1960s. It enables students to practise installing insulation between rafters, ventilating roof spaces, and carrying out repairs on heritage-style roofs. At the rear, water cisterns allow learners to develop skills in insulating around cold-water tanks, a common feature in older homes. The structure also supports working at heights training, ensuring students gain practical experience relevant to traditional housing, and allows for solar panel mounting practice for roofers.



Tools for Students

At Quantum, we ensure students train with the same tools and equipment used across the industry, giving them a truly realistic learning experience. From levels and trowels to saws, hammers, and specialist retrofit tools, every kit is designed to mirror professional practice. This approach not only builds technical competence but also gives learners the confidence to transition smoothly into the workplace.



Train the Retrofit Trainer



Quantum delivered a two-day “Train the Retrofit Trainer” programme for Barking & Dagenham College’s Built Environment lecturers, designed to ensure staff were fully equipped ahead of the new facilities launch.

Over the two days, lecturers gained hands-on experience with every newly installed training bay and practised essential retrofit techniques such as air-tightness taping and sealing. We also arranged for guest tutors from Mount Lucas National Construction Training Campus, Ireland’s retrofit and NZEB centre of excellence—active since 2007 and having trained nearly 7,000 learners since 2020—to join the sessions and share their best practices.

By the end of the programme, lecturers were confident and well-prepared to deliver high-quality, industry-aligned retrofit training to students.



Before and After example of lecturer’s practicing taping and sealing for air tightness on our Desktop Airtightness Practice Unit during their training

The Impact

The new Green Skills Training Facility at Barking and Dagenham College (BDC) is already establishing the college as a focal point for retrofit and low-carbon training in East London.

The investment has attracted strong industry interest, with suppliers such as Ecological Building Systems and the Head of the Energy Efficiency Association visiting within the first two weeks of completion to see the training offer first-hand.

With over 1,000 construction students enrolled at BDC, the new facility ensures that every learner, regardless of their chosen trade, gains meaningful exposure to retrofit practices and green construction techniques that are rapidly reshaping the industry. The college is considering NOCN qualifications among a range of provision routes.

Situated on the doorstep of the Thames Freeport project, the college is uniquely positioned to act as a central hub for green skills and upskilling, connecting local learners and employers to the technologies and expertise driving the UK's low-carbon transition.



Client Testimonials

Principal and CEO Natalie Davison added:

"Green construction is a massive growth area for our borough, and we are delighted to have received this funding to launch our new green construction training centre at Barking & Dagenham College. This investment will be invaluable in helping local people to train and retrain in this developing industry and will support local businesses to develop the skilled workforce they need."

Sharmila Mitra – Head of Procurement commented:

"The LSIF Green Skills Project is an example of great collaboration - working between BDC Procurement, BDC Estates, Quantum and BDC Curriculum - with support from BDC Exec and Newham College. Thank you to all who made this happen."





Building the Green Workforce of Tomorrow

At Quantum, we are driven to address the UK's Green Skills shortage by providing world-class training solutions in low carbon technologies, sustainable building practices and retrofitting.



If your institution is ready to invest in building the UK's green workforce, we're ready to help.

