



CASE STUDY

BURNHOLME GREEN, BURNHOLME ESTATE, YORK

IKO Armourplan PSG Single Ply Waterproofing System
1,200m²



Project sector: Residential

CONTRACTOR

Caddick Construction



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PROJECT OVERVIEW

City of York Council set out to do something it had never done before: build an entire neighbourhood that runs on almost no operational energy. Burnholme Green is the council's first zero-carbon housing development, delivered by Caddick Construction as part of a wider programme to build 600 new homes across the historic city. The scheme comprises 78 Passivhaus-certified dwellings across a mix of types, including terraced houses, apartments and duplex units. Between 40- and 60% of the development is designated as affordable housing, more than double the current planning requirement, reflecting the overall goal of the project to provide a higher standard of sustainable living for all.

Designed by Stirling Prize-winning architects Mikhail Riches and co-designed with local residents, the development combines tree-lined streets, shared green spaces and new build homes specified to verified comfort and environmental performance standards. IKO Armourplan PSG single ply membrane and IKO enertherm ALU Tapered PIR insulation were specified as part of the thermal envelope and airtightness strategy across all 78 homes.



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CHALLENGES

Passivhaus certification is among the most demanding performance standards in residential construction, requiring independently verified airtightness and measurable thermal continuity across the entire building envelope. Meeting that standard at scale, across 78 dwellings of varying type and geometry, presented significant technical and logistical demands.

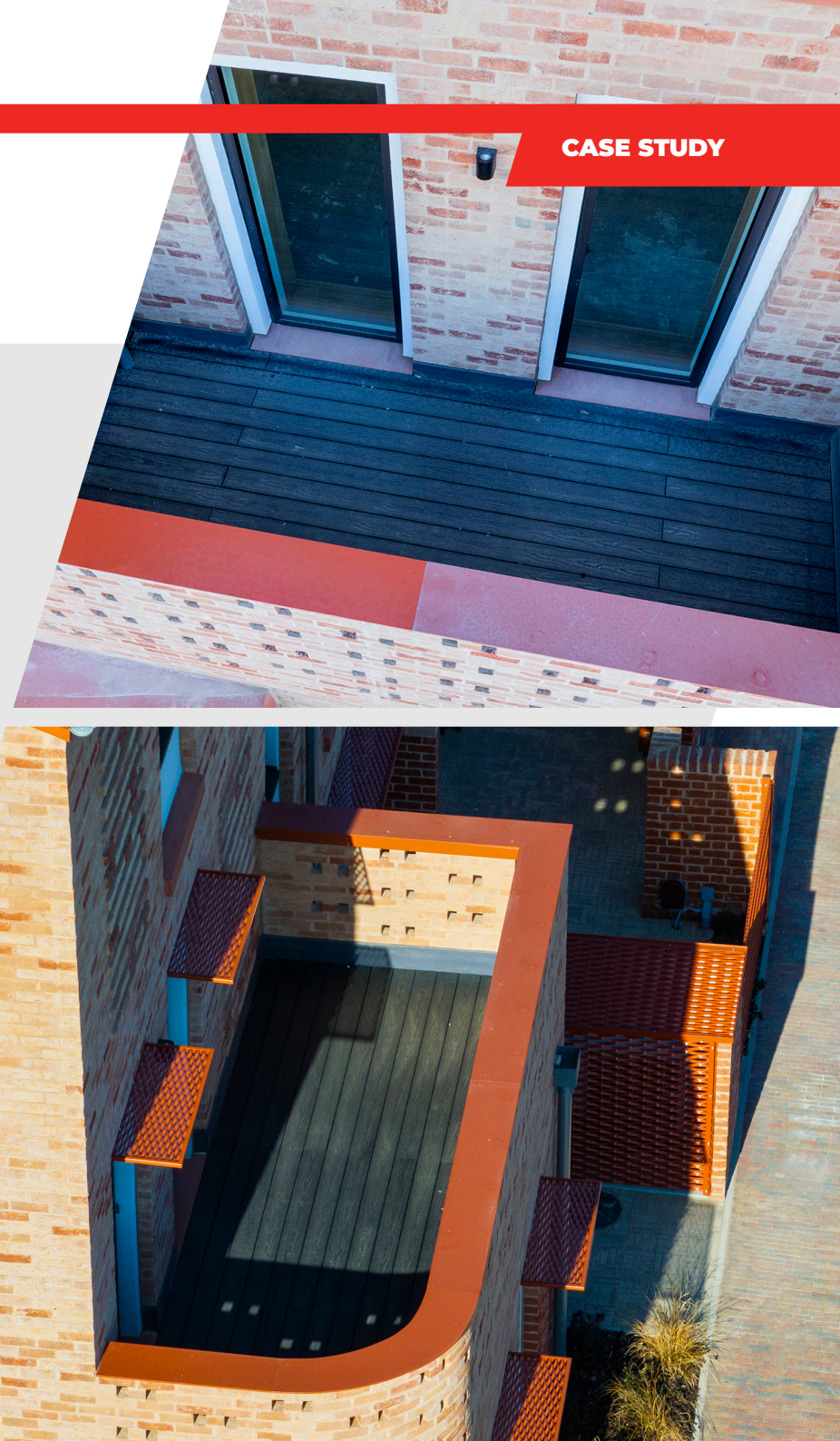
The roofing specification had to support continuous airtightness at all roof interfaces without relying on through-deck mechanical fixings. Complex junctions, including internal and external corners and penetrations for rooftop photovoltaic arrays and mechanical and electrical services, required consistent, verifiable detailing throughout. The presence of rooftop plant, including PV arrays and air-source heat pumps, also meant that safe, defined maintenance access routes had to be incorporated from the outset.

SOLUTION

IKO specified its IKO Armourplan PSG membrane, a glass-tissue reinforced, polyester fleece-backed PVC membrane installed using a fully adhered build-up with polyurethane or Fleece Membrane Adhesive (FMA) (BBA Agreement 05/4287). Eliminating through-deck mechanical fixings supported continuity of the airtight layer at critical roof junctions. IKO enertherm ALU Tapered PIR insulation, with a declared thermal conductivity of 0.022 W/mK, provided designed falls to outlets while delivering the thermal performance required across the full roof geometry. The system's flame-free installation method was a further practical advantage on an occupied residential site.



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The roofing works were carried out by Malden Roofing of Sheffield, an IKO-approved contractor with relevant experience of Passivhaus programmes. Substrates were prepared to specification and adhesives applied in line with manufacturer guidance, with activation times carefully observed. Membrane sheets were laid to stagger end laps, with 60mm laps hot-air welded and seam-probed on cooling. Peel tests were carried out at start-up and repeated following any change in conditions, with records maintained throughout. IKO technical engineers visited the site weekly to assess the quality of completed work and provide best practice guidance as the project progressed.

The project team adopted a phased approach to airtightness rather than relying on a single final test. Once the primary airtight layer associated with the roof system was in place, early inspections and pre-completion air tests were carried out, giving the team the opportunity to review and refine detailing at key roof interfaces while construction remained underway.

Complex junctions, including internal and external corners and penetrations for PV arrays and mechanical and electrical services, were formed using both preformed and hand-made details to maintain continuity of the waterproofing and airtightness line at every interface. Final verification testing was completed at handover in accordance with the Passivhaus Trust Good Practice Guide to Airtightness (v10.4, June 2020).



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OUTCOME

IKO specified its IKO Armourplan PSG membrane, a glass-tissue reinforced, polyester fleece-backed PVC membrane installed using a fully adhered build-up with polyurethane or Fleece Membrane Adhesive (FMA) (BBA Agreement 05/4287). Eliminating through-deck mechanical fixings supported continuity of the airtight layer at critical roof junctions. IKO enertherm ALU Tapered PIR insulation, with a declared thermal conductivity of 0.022 W/mK, provided designed falls to outlets while delivering the thermal performance required across the full roof geometry. The system's flame-free installation method was a further practical advantage on an occupied residential site.

IKO GUARANTEE

25-year single point guarantee

PRODUCT / SYSTEMS

- IKO Armourplan PSG Single Ply Waterproofing System
- IKO enertherm ALU Tapered Insulation



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