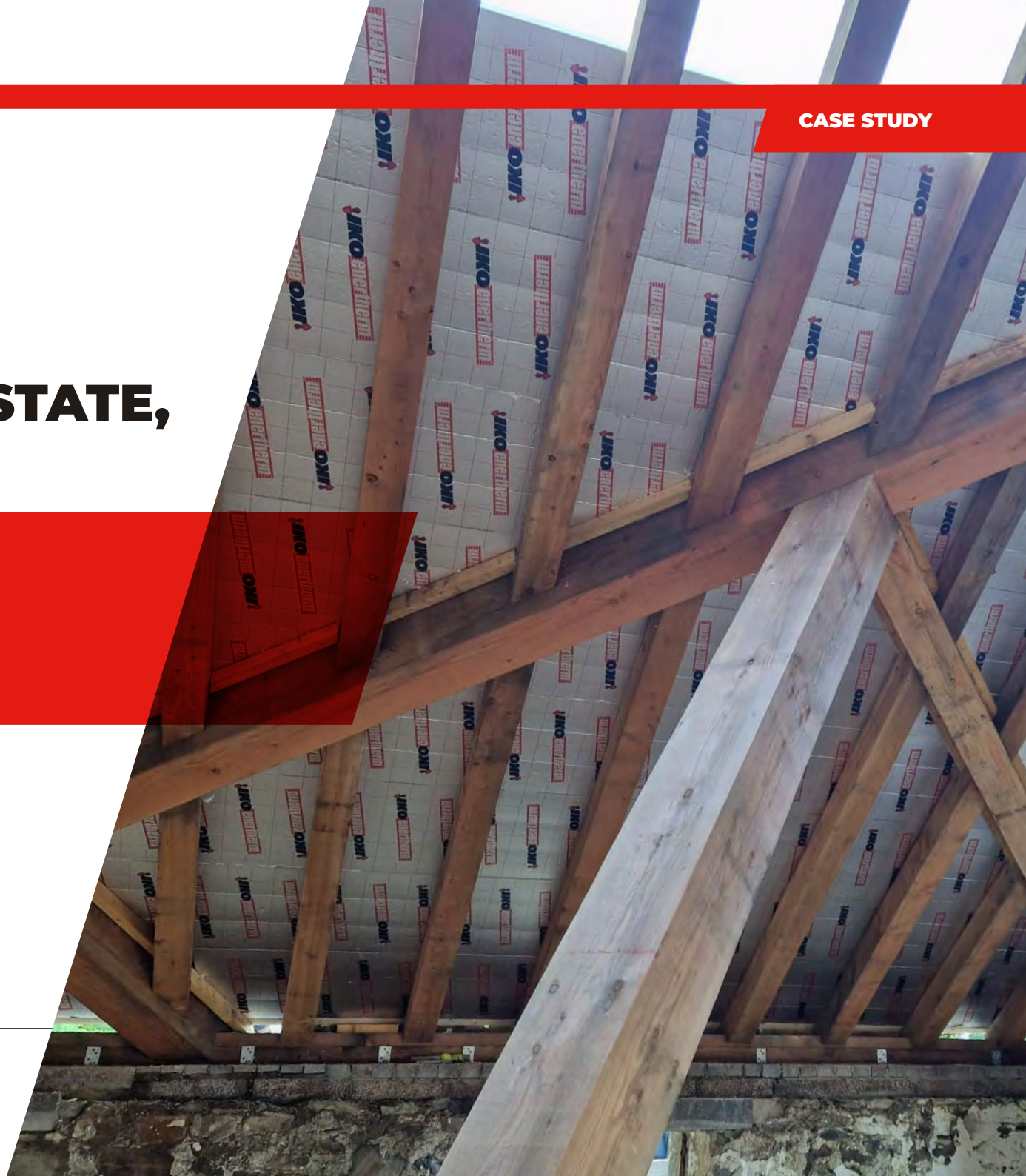
CASE STUDY

THE BOAT HOUSE, BIRKHILL CASTLE ESTATE, MORAY FIRTH

Enertherm ALU PIR insulation
350m²

Project sector: Residential



CONTRACTOR

Timber Works

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CASE STUDY

BRIEF

The Boat House Residence is a newly restorated home nestled within Birkhill Castle Estate; the Boat House has an enviable position overlooking the shores of the Moray Firth in the historic Kingdom of Fife. Nature is at the heart of everything they do at Birkhill, it's their greatest asset where the estate provides and evolves its practices by providing sustainable solutions. During the renovation of the Boat House, oak wood from an overgrown tree on the estate was cut and carefully carved to form the roof trusses and internal structure of the build.

The estate enlisted Sofia Blanco Santos, a Spanish architect based in Madrid to oversee the project. Designed with sustainability in mind, the key objective of the build was to ensure that the property was thermally future-proofed and met thermal performance building regulations for a fabric first approach… Not only are fabric first homes far more cost-effective to build and run, but they also offer many benefits for the eco-conscious end-user – not least boosting the environmental credentials of the new home.

Choosing a quality, high-performance insulation system for the property's pitched roofs, walls, and floors was therefore critical to maximise thermal efficiency and help ensure the home was fit for the future.

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CHALLENGES

The Boat House's open location posed a key challenge for the contractors; it was critical to protect the property against the elements during the renovation and prevent water ingress from wind-driven rain given its open location. It was also key when choosing the insulation that it was able to be in line with providing a traditional sarking method of constructing a slate pitched roof, replicating the roof from its original form while also delivering the required U-values.

SOLUTION

IKO's high-performance IKO enertherm ALU PIR insulation was specified as the main insulation system for Birkhill Castle's Boat House pitched roof.

IKO enertherm's multi-application, lightweight, high-performance board provides a thermal capability of 0.022 W/m2K and fits easily between timber studs, roof rafters, and floors to create a superbly flat foundation for a waterproofing finish. By using this system, differing airtightness levels and ventilation strategies could be incorporated. The boards were installed to thickness in all systems in line with achieving new building regulations and delivering the fabric first approach.

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Using IKO enertherm ALU PIR insulation, the following U-values were achieved:

- Ground floor: 150mm IKO enertherm ALU PIR insulation achieved a U-value of 0.11 W/m^{2}K
- Walls: Full-fill IKO enertherm ALU rigid PIR insulation achieved a U-value of 0.12 W/m^{2}K
- Roof: 140mm IKO enertherm ALU between rafters and 90mm below achieved a U-value of 0.10 W/m^{2}K

PRODUCT / SYSTEMS

- IKO enertherm timber wall framing system
- IKO enertherm ALU pitch roof system
- IKO enertherm ALU above slab floor system

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