Case Study:
Energy Safety Research Institute (ESRI) , Swansea

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Photos: Michael Gove

Kawneer systems feature on a university building with multiple pioneering elements

Architectural glazing systems from Kawneer have helped the £12.65 million Energy Safety Research Institute (ESRI) at Swansea University, an exemplar building in sustainable, low-energy design, become the first education building in the UK to achieve BREEAM "Outstanding".

Building: Energy Safety Research Institute (ESRI)
Location: Swansea
Architect: Stride Treglown
Main Contractor: Bouygues UK
Installer: Dudley's Aluminium

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Kawneer helps in ESRI's "Outstanding" BREEAM status

ESRI was the final project to be delivered through the 2009-2014 capital projects framework at Swansea University and is a unique centre of research innovation, facilitating ground-breaking work into the safe deployment of new renewable energy solutions. The Kawneer systems were used throughout the 4,500m² building and comprise AA®541 top-hung casement windows, low/medium-duty swing doors and AA®100 zone-drained capped curtain walling featuring dressed aluminium feature beams. These mimic steel beams by being glazed into the system and insulated to create horizontal emphasis at varying levels.

They were installed on the brickwork and rainscreen-clad building with cavity and SFS inner wall construction by Kawneer-approved specialist sub-contractor Dudley's Aluminium for main contractor Bouygues UK. Ian Standen, associate architect with regular Kawneer specifiers Stride Treglown said: "The Kawneer systems are a key feature of the design as the window and curtain walling details became the focus of the Prince's Foundation for Building Community who were advising the university."

Part of the 27,000m² Engineering Quarter on the university's new Bay Campus, the building accommodates scientific testing and experimental laboratories, high-quality offices, communal areas, meeting rooms, research offices and a showcase lecture theatre. The ESRI site was part of 40 hectares gifted by BP, one of the university's major industrial partners. Its funding through Central Government's UK Research Partnership Investment Fund was contingent on achieving a BREEAM Outstanding rating which made it the first education building to do so. One of its key innovations is a layout that inhibits any form of silo culture within the research areas by placing a strong emphasis on the shared space between research groups. Building users and visitors are able to see into the laboratory spaces from the circulation areas and gain a feel for the activities going on inside. The state-of-the-art Harvard-style lecture theatre is a fully-serviced space for public events as well as research-based activities. Beyond the entrance foyer a linear form dictates the layout of the rest of the ground floor, comprising three main chemical laboratories and serviced ancillary space together with the main marine laboratory. This facility is unique in Wales, featuring a technically-challenging 30m-long wave flume tank which allows the university to model estuarine tidal flows and silt deposition.

The building has been designed as a highly adaptable research hub, capable of dealing with future changes in research programmes. The first floor accommodates office and research-based functions. The offices for researchers are located on the southern side of the building with two open-plan research hubs a large seminar room occupying the remainder of the floor plan. The second floor accommodates executive offices where the main professorial suite is located. An executive suite is located on the top floor with a balcony accessing extensive views over the campus. The design has looked to improve the building thermal envelope performance through passive design (reducing air permeability, U-values and g-values) primarily and has subsequently included additional options to reduce energy consumption and to use and recover energy efficiently.

Ian Standen said: "Material sourcing and recyclability were key issues for the design team. As a result the U-values through the frame and press cap details came under scrutiny to match the design criteria and BREEAM credits for the building's energy usage and air permeability requirements By working very closely with the technical team at Kawneer and the sub-contractor providing samples and building mock-ups, agreement was secured for the aesthetic and technical changes presented in using the Kawneer systems, and they work well with the glazed fritted panels and insulated units on the project."

ESRI was the last of the Bay Campus projects to start and yet had to be the first to finish, hence the build programme of under two years. It was shortlisted for the BREEAM 2016 and regional RICS awards in 2016.

Please contact our Architectural Services Team if you have a project you would like to discuss: Tel: 01928 502604 / Email: kawneerAST@arconic.com

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