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Yorkon completes one of the UK's most sustainable school buildings to be constructed off site

Award-winning off-site construction specialist and Portakabin subsidiary, Yorkon, has completed construction of one of the UK's most sustainable modular school buildings.

The scheme for Worcestershire County Council is believed to be the first modular education building to be heated using biomass fuel and the first to incorporate such a complex passive, low energy ventilation system.

The two-storey building at Bewdley High School was manufactured off site in York, which reduced the programme time for such a challenging project to just 22 weeks. 60 steel-framed modules have created clear internal spans of up to 12m for space planning flexibility and were craned into position complete with windows and partitions pre-installed in the factory to improve quality.

The modular scheme provides 12 general classrooms for the school's English, Modern Languages and Humanities Faculties, two science laboratories, a creative area and administrative centre. It is linked to a traditionally-constructed drama and dance studio – illustrating how conventional building methods can be integrated with off-site construction.

The selection of a passive ventilation system was in line with the Council's policy to naturally ventilate all its school buildings, whilst ensuring the comfort of teaching staff and pupils, and to help improve concentration levels. This bespoke low energy system uses the principle of passive air stacking.

Carbon dioxide and temperature sensors constantly monitor the internal environment in each classroom, automatically drawing in fresh air as required. This is passed diagonally over radiators to prevent cold draughts. The stale air leaves each room via high capacity discharge terminals located on the roof, creating a constant change of air and the optimum air composition in each room.

Other design features include:

- central heating powered by an environmentally friendly 'biomass' boiler to minimise carbon emissions
- timber cladding from sustainable sources
- a highly glazed activity studio with high levels of natural light
- a striking bespoke roof structure.

Commenting on the project, Dermot Galvin, Project Architect at Worcestershire County Council, said, "The primary driver for the decision to use off-site construction for this project was time, which was critical to ensure the new facility would be ready in time to take an additional intake of pupils."

"Yorkon offers a superior quality building system and has a keen interest in design, attention to detail and quality of finish, bringing skills to the project that are not always associated with modular construction and despite the challenging timescale. Their team has added value to the scheme and had the flexibility to meet our specific requirements, which included a number of bespoke elements. The result is a good quality, low energy building, which has met our expectations."

Modular construction is a highly sustainable method of construction, which improves air permeability to enhance energy efficiency. It also reduces vehicle movements to site, waste, running costs and carbon emissions.