



Case Study

# CIW Primary School, Welshpool





# Case Study

Project Name

**CIW Primary School**

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Location

**Welshpool**

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Project Type

**Education**

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Specification

**Passivhaus**

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## The Project

Lowfields supplied and erected a new CIW primary school in Welshpool. The school was a large project built to Passiv Haus certification. The school has a superior level of insulation and was built to be airtight. The project was also built with a heat recovery and ventilation system and solar panels on the roof to minimise running costs.

Welshpool Church in Wales Primary School is the latest project the council has delivered under its 21st Century School Programme. The new school, which will help the council deliver its Strategy for Transforming Education in Powys, is the first Passivhaus primary school to be built by the council.

## The Details

**0.25**<sub>ach</sub>  
Airtightness @50 pascals

**0.10**  
U-Value achieved

**390**<sub>mm</sub>  
Larsen Truss frame

**2754**<sub>m2.</sub>  
Size of development







# Scope of Services

The Larsen truss system was chosen as it allows for a thicker wall space. This space can then be filled with Warmcel Insulation, the wall thickness can be varied to achieve required U-value. This project used a 390mm frame to achieve the required U-Value of 0.10.

The wall was filled with Warmcel Cellulose Fibre Insulation. Warmcel insulation is made from recycled newspaper. Naturally occurring mineral salts are then added during the milling process for fire resistance and fungal/insect protection.

A hole is cut in the internal airtightness layer and the insulation is pumped into the wall cavity, then the hole is sealed with airtight tape. The airtight tape is imperative. It should be used on all internal joints and around window and door openings. The tape can also be used on the external membrane joints to aid wind tightness.

Roof cassettes were also used which are filled the same way as the wall panels.

18mm OSB boarding was used internally utilising airtight tape on all joints to maximise air tightness. Warmcel insulation was blown into the cavity space once the structure was in place on site and all holes were sealed with the tape.





# Uncertain times

This was Lowfields first large passiv haus project and it was overall a great success. The project faced uncertainty as the timber frame building was left open to the elements for over 12 months due to the original contractors going into administration.

BM TRADA conducted a survey on the building to see what remedial work would be required after the timber frame was left sitting for a long duration. The report concluded that there were very minimal replacements required, and that required was mainly to the northern side of the building.

Although high moisture timber was found on this elevation, there was no evidence of degradation or fungal decay. However, the lower outside OSB boarding to the northern side was removed to allow a drying out period before being replaced with new OSB and the warmcel insulation was re-installed. Overall, the robustness of the timber frame was far greater than what would have been predicted and with minimal replacements and time the building was at a suitable moisture content level.





“This scheme will provide a contemporary and energy efficient school that will serve the children of Welshpool well for years to come. Producing a building of this size that reaches these high standards is a big achievement and one that everyone who has worked on the school should be proud of.”

- Steven Owen, Managing Director of Pave Aways.





# Case Study

Client

**Powys County Council**

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Main Contractor

**Paveaways**

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Architect

**Architype**

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Passivhaus Consultants

**PYC Warmcel**





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