



Cambourne Village College, Cambridge



Main Contractor

Kier Construction Eastern

Client

Cambridgeshire Council

Architect

Frank Shaw Architects

Engineer

Peter Dann Limited

Structural Frame Provider

X-LAM Alliance

Products

Glulam

CLT

Steel Hybrid

In 2009 a small newly developed Cambridgeshire village made national news headlines with the Daily Mail reporting the birth rate was double the UK average and higher than some of the world's most densely populated nations. This baby boom had created an urgent requirement for a secondary school - the clock was ticking and the school had to be up and running by September 2013 to accommodate the record number of pupils moving on from the local junior school.

Kier Design Manager, Mark Rowney commented: "We had to get from nothing - not even a site - to a finished school building in two and a half years. We had budgetary constraints; we had to future proof the school against further rises in population and we had to abide by the ecology principles Cambourne Village College was founded on."

With such a tight deadline traditional construction methods were dismissed by Kier. Mark Rowney continued: "We had to find a solution that best suited the delivery period and also ticked the boxes from a sustainability point of view."

X-LAM Alliance provided the ultimate solution - a hybrid structure of cross laminated timber, glulam and steel, designed to optimise project delivery timescales, cost efficiencies and most importantly, sustainability. Only by maximising offsite construction methods could the project be delivered on time and budget.



Cambourne Village College, Cambridge

The engineered timber frame was designed to integrate structural cross laminated timber (CLT) infill panels with glulam beams and steel. Full height CLT panels were used to maximum effect in the sports hall to offer a robust finish and aesthetic appeal.

Traditionally follow-on trades would progress the structure – here the entire frame was assembled onsite in almost one go. BIM modelling ensured the individual elements of the structure could be installed both accurately and efficiently. The build programme was further enhanced by the use of two cranes – cutting the onsite installation time down from the forecasted twelve weeks to nine.

Built on a 19.85 hectare green-field site, the two-storey cross laminated timber structure with add on modules, provides a total of 45 teaching rooms - five of which are within the main structure plus four large communal spaces.

A sports hall, gymnasium, theatre, dance studio and meeting halls each of which are in excess of 120 m². It is a tribute to the benefits of CLT and the programme planning between the main contractors, Kier Construction Eastern and the X-LAM Alliance that such a large structure was delivered within nine weeks, actually three weeks ahead of target.

The Sports hall which is 33m in length, is a large, double storey space, created from panels of CLT 125cm wide, 10m in height and with glulam rafters spanning 18m across the roof supporting CLT roof panels. Classrooms and larger spaces included non-structural partition CLT walls facilitating any future adaptations to the building without compromise to the structure and predictable cost implications.

“The outcome of this extremely successful project is a testament to our excellent working relationship with Kier,” said Greg Cooper, Engineering Manager for the X-LAM Alliance. “Delivering the school on time and within budget was a challenge and required considerable coordination and communication by all those involved.”

Designed by Frank Shaw Associates, Cambourne Village College now accommodates up to 750 pupils to help meet the growing demand for secondary school places in the area, the new school has a central mall with three teaching wings radiating from it, and a series of sheltered courtyards to encourage outdoor learning. The ends of the curriculum blocks feature full-height stair towers and a balcony at first-floor level, which will create an additional outdoor teaching space.

The whole development from farmland to school took an astonishing 41 weeks. Low Energy Consultancy completed the Energy Performance Certificate and Display Energy Certificate. Cambourne Village College achieved a BREEAM ‘very good rating’ which was supported by the EPC rating of B29.



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