StoraEnso

Arbour Vale School Extension
Slough, UK

The 2024 extension of Arbour Vale School in Slough stands as a prime example of rapid and efficient construction. The project involved building a new four-classroom block to accommodate additional pupils, particularly those with special educational needs and disabilities (SEND).

Remarkably, the project received planning permission at the end of July 2024 and was delivered in just six weeks, with assembly completed in under two weeks. Equally impressive, the project far surpassed its targets for operational efficiency and carbon storage, achieving an Energy Star rating of A+.

These project successes were achieved through excellent project coordination and the use of Stora Enso's prefabricated Sylva™ kit of mass timber parts. The project also leveraged Sylva Services, precoating and preinstalling lifting devices so that when the elements arrived on-site, they were ready for immediate installation.

Collaboration and logistics

Key decision-makers from the school and Lamella visited the Stora Enso sawmill in Austria for a mill tour. Lamella coordinated the design and construction team. They worked with the Stora Enso UK team to expedite delivery, reducing the usual eight-week lead time to just six weeks.

Design evolution

Initially planned as modular buildings, the project shifted to a panellised structure late in the process. This decision was made to better meet the project's needs and tight timeline.

Rapid construction

Speed is often of the essence with school developments. Sylva™ CLT elements are very quick to install- allowing builds in school holidays. However Arbour Vale School construction was particularly impressive. The superstructure consists of 14 modules that together provide four full classrooms, and a kitchen utility area went up in less than 2 weeks. 208 cubic metres of Sylva™ CLT Wall, Floor and Roof elements arrived in just three deliveries with pre-cut door and window openings, ensuring draught-proof and well-insulated structures.

The tight timeline was made possible in part because the project leveraged many of Stora Enso's Sylva Services including End Grain Sealer, Hydrophobic Coating and Lifting Devices in their factory-controlled conditions so when the elements arrived on-site, they were ready to install immediately.

Overcoming site challenges

The site presented some unique challenges, including a Thames Water sewer running beneath the area where the new classrooms were to be placed. To overcome this, Lamella designed and installed a steel transfer structure, which worked perfectly with the modular approach. This solution ensured the building was securely placed without interfering with the existing infrastructure.

Sustainability

The Sylva™ CLT Walls, Floors and Roofs only generated 11 tonnes of greenhouse gases (CO_2e) to manufacture and 7 tonnes of CO_2e to transport. Compared to the 158 tonnes of carbon dioxide that the trees removed while growing and will store in the building, this is a small fraction. Choosing Sylva CLT elements instead of non-renewables avoided 238 tonnes of greenhouse gases. (Source: Stora Enso Carbon Calculator. Try it out and see what how small the carbon footprint of your project would be too).

The low carbon footprint of the Sylva kit contributed to the the excellent A+ Energy Rating (see gallery for details). While energy efficiency in buildings has improved a lot during recent years and while the energy generation is decarbonising also with great speed, the urgency to cut embodied carbon is further emphasized and achieved in this project by building with Sylva.

Low transport emissions

An additional advantage for the school was the reduced amount of lorry traffic. Because CLT is five times lighter than concrete, vehicle traffic was reduced by an estimated 80%. Additionally, its lighter weight required much less costly and timely concrete foundations.

Read more about the main advantages with wood here.

Biophilic benefits for children and teachers

Sylva™ CLT elements offer numerous biophilic benefits that enhance the well-being of building occupants, making it an ideal choice for projects like the Arbour Vale School. Incorporating wood into the design promoted a connection to nature, which has been shown to reduce blood pressure, improve cognitive performance, and enhance mood. (Source see also Kelz, Grote, Moser Int. J. Environ. Res. Public detailed in our Health and Wellness whitepaper).

The natural warmth and aesthetic appeal of wood create a comforting environment, while its organic properties help regulate indoor humidity and temperature. These benefits align perfectly with the project's goals of providing a healthy, energy-efficient learning space for students and staff.

Outcome and feedback

The new classrooms are now fully operational, providing modern, energy-efficient spaces for the students and staff. The project has received strong support from the school, local education authority, and their advisers. They view this project as a prototype for future school facilities in the Slough area, built to exacting standards with the children's health and best interests in mind.

LAMELLA MMC LIMITED is a UK-based company specialising in the supply and installation of sustainable building products, primarily Cross Laminated Timber (CLT). Established in 2020, they aim to make CLT a mainstream construction material.

Funding and planning

Slough Borough Council allocated the funds for the new classrooms to ensure sufficient special school spaces at the start of the new school year. The project aimed to meet the highest standards of quality, providing an optimal learning environment for the children.

Publications

BBC Plans for four new classrooms for Slough school given green light

Arbour Vale School Slough Schools are now building in (CLT) Cross Laminated Timber. - Lamella MMC

StoraEnso

General

Delivery year

2024

Building type

Education

Area (m²)

3,904

Units

4

Photo credit: LRA Retinue

Products

Products and Services

Sylva™ CLT Floors and Roofs, Sylva™ CLT Walls, Hydrophobic Coating, End Grain Sealer, Preinserted lifting devices

Product quality

VI and INV

Product volume (m³)

159

Product delivery duration (weeks)

6

Number of deliveries

3

Team

Developer

Arbour Vale School
Slough Borough Council
Department for Education

Architect

LRA Retinue

Structural Engineer

QED Structures

Specialist Timber Subcontractor

LAMELLA MMC LIMITED

StoraEnso

Others

Construction duration (months)	Timber superstructure erection duration (weeks)
8	2