

Spark of change: Timber in schools

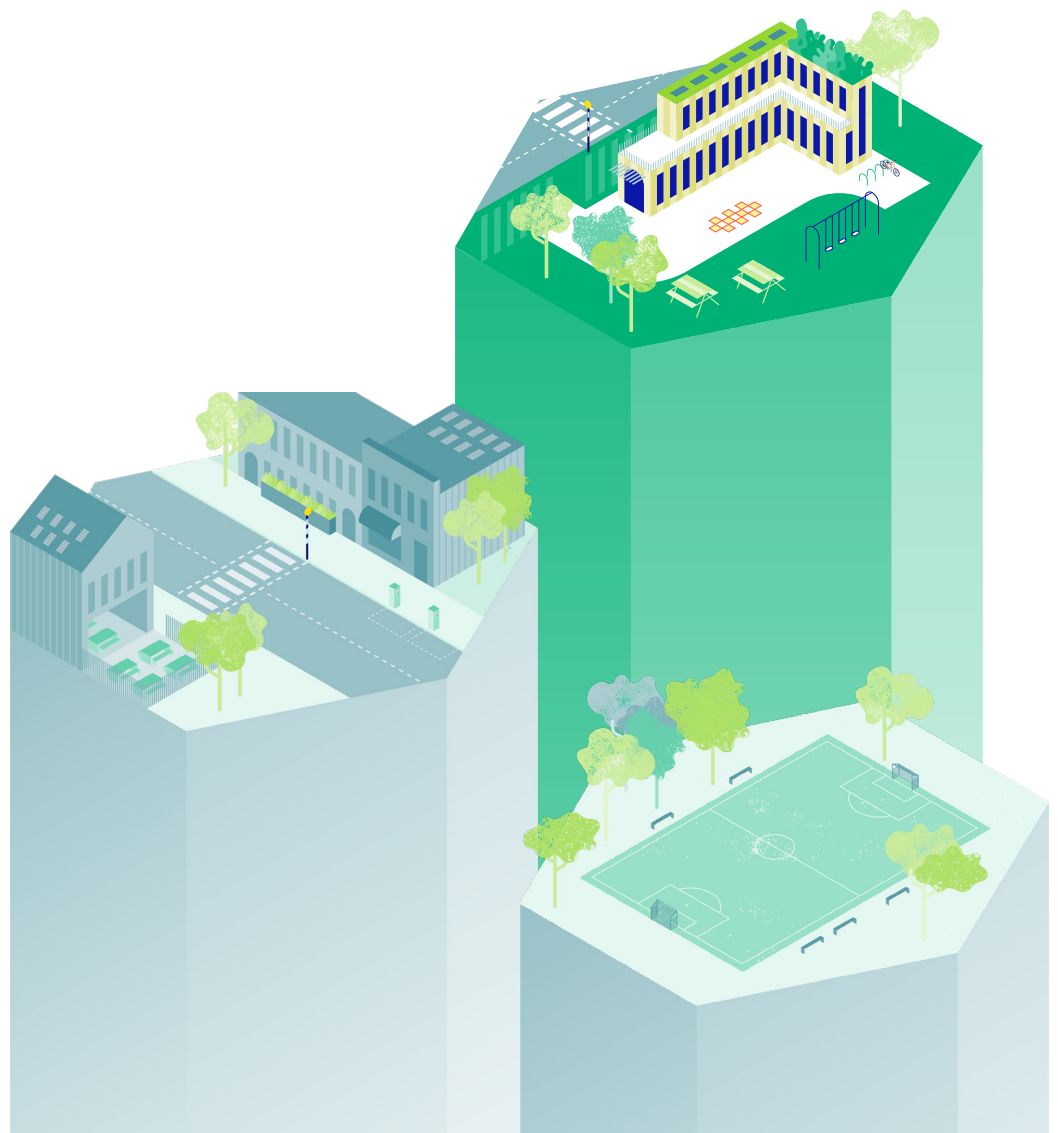
Discover how engineered timber may hold the key to unlock an additional 120,000 school places for children across the UK.

PARTNERS

Construction Innovation
Hub (the Hub)

Centre for Natural Material
Innovation (CNMI)

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INTRODUCTION

The world's population is growing. By 2050 there will be an additional 2.1 billion people on Earth. One of the impacts of this population growth here in the UK will be a need to create an additional 120,000 school places in the UK alone by 2023-2024.

When it comes to creating these much-needed additional school places, timber may hold the key.

THE PROJECT

By 2024 we need to provide an additional 120,000 school places to children in the UK. This is an ambitious target and one which will necessitate the building of new schools, or expansion of existing sites.

With this urgent requirement to quickly increase capacity we need to reconsider how we design and build our schools to ensure we keep the environmental impact of construction to a minimum, whilst making them cost and time efficient to build.

Construction Innovation Hub is enabling research from the Centre for Natural Materials Innovation at the University of Cambridge, which brings together scientists, engineers and architects specialising in the use of natural materials from cell walls to timber skyscrapers.

They are exploring the potential for the use of engineered timber in schools' construction. Engineered timber is a relatively recent innovation in what is one of our oldest building materials. Not only does wood have excellent structural properties, it also stores carbon in its cells, offering substantial benefits as a sustainable alternative for conventional materials such as concrete and steel. Although impressive in its resilience and flexibility of usage as a material, natural timber is best-suited to smaller, lower height buildings where the time it takes to construct, and the efficient use of materials, help to keep it a time-efficient and low-emission construction process.

Engineered timber, which is created by machine pressing and gluing layers of natural timber together, enables mass-production of building components whilst guaranteeing high quality and consistency in material properties. Through off-site digital manufacturing and fast onsite assembly, it can reduce construction time, as well as the embodied carbon, cost, transport and weight of buildings.

The engineered timber is then provided in prefabricated form, reducing the amount of time it takes to construct and consequently the amount of carbon produced through the building process. The timber used in the build has also successfully sequestered carbon from the atmosphere during its lifecycle, therefore acting as a carbon sink, helping to offset carbon emissions.

In addition, the modularity of the engineered timber building components lends itself well to standardised programmes, while enabling the design to adapt to a variety of project specific requirements in an effective and robust way. This is particularly advantageous when considering it for school construction projects, as often schools are very modular in their design with internal layouts needing to be flexible as they may be reassigned for differing uses over time. Using engineered timber also makes the addition of any extension builds easier to incorporate at a later date due to its lightweight configuration and efficient assembly process.

There is also compelling evidence to support the theory that inhabitants/users of timber buildings generally experience improved mental and physical health benefits due to what is known as biophilic impact of being surrounded by natural materials. Consequently, this holds significant appeal for the use of engineered timber in the likes of schools and hospitals.

The research project aims to demonstrate the pragmatic advantages of using modular, large-scale engineered timber materials for building schools, with evidence-based paper and research-based designs produced as an output to inform policy-makers and developers.



FIND OUT MORE:

To learn more about this project, [click here](#)

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The Construction Innovation Hub is funded by UK Research and Innovation through the Industrial Strategy Challenge Fund



The Construction Innovation Hub is a consortium between:

