



Partner of Stora Enso

John Morden Centre

London, United Kingdom

EURBAN

The greenest building is the one that already exists. A quote by Carl Elefante, former president of the American Institute of Architects

Renovating and retrofitting existing buildings to meet modern emission standards is the greenest alternative available. London consists of thousands of Victorian and Edwardian properties (1837–1910c), many of which are crumbling and use excessive heat, water, and electricity due to outdated materials and equipment. An estimated 50,000 buildings are torn down each year in the UK, generating 126 million tonnes of waste representing two-thirds of the UK's total waste (Department for the Environment, Food and Rural Affairs).

New construction with the latest green energy-saving equipment is often not a viable or sustainable solution. New commonly-used building materials have huge embodied carbon emission price tags on our planet. The World Green Building Council estimates buildings are responsible for 39% of global energy-related carbon emissions. The production of cement alone accounts for 8% of global carbon emissions, according to research by the Chatham House thinktank. Coupled with the additional complication that many of the buildings hold historical significance, a genuine challenge faces municipal authorities and the construction industry.

Mæ Architects have developed a flagship solution, positioning the newly opened John Morden Centre at the forefront of the transition from the fossil to the biogenic fuel age with a resource-efficient retrofit. The Centre is a development in step with a growing movement of architects campaigning to use the existing fabric of buildings.

John Morden Centre is a day centre for elderly residents of Morden College—a Grade I listed charitable home built in 1695 by Sir Christopher Wren's master builder and successor, Edward Strong. The Centre has won multiple awards and is considered by many to be a blueprint design for effectively combatting loneliness. All communities grapple with this social issue but the swelling senior population poses a particular challenge. Breaking down what they did exceptionally well, we can learn from their example.

Renovating the existing fabric

Maintaining a sense of connection to the original landscape and existing brickwork was a priority. In addition, the developers wanted a modern and dynamic space that would invite social interaction and enhance wellness and creativity for the workers and residents.

The new facility ties together the buildings scattered across the college site in an innovative and characterful way. The renovated structure interweaves the original building on the existing grounds using the original fabric and introducing sustainable engineered wood.

The mixed-use structure includes original brick, glued-laminated timber (glulam) columns, and 290m³ of Cross-Laminated Timber (CLT) panels. Working with timber allowed Mæ to make use of its structural and aesthetic qualities—in particular enabling the creation of a striking roofline that mimics that of the original Wren-designed buildings at Morden College. Wren's use of timber and brick was innovative in its time, and the use of the materials here are a nod to that architectural heritage.

Keeping all the existing lean-to buildings was not possible but 10 000 bricks were salvaged and used to construct new retaining and garden walls on the site. The superstructure and load-bearing components are quality, sustainable Stora Enso large-scale CLT. The outer leaf is self-supporting masonry—a nod to Wren's original quadrangle courtyards.

Reflecting on the project, Major David Rutherford-Jones, chief executive officer at Morden College said: "Mæ captured fully, innovatively and with great style, our vision. Their unique design and materials use makes exceptionally clever use of space is the catalyst for something seminal at Morden College, and truly special."

Commenting on the mixed-use of materials, Harvey Walker from Stora Enso said, 'one of the key benefits of mass timber is that it complements other structural materials so easily. Wood is often an ideal building solution for a project when you are working with the existing fabric. In this case the structure is all mass timber (CLT & GLT), and the brickwork is a self-supporting external envelope.'



Well-being

The decision to leave the wood exposed on the interior was mainly for the health benefits of the workers and residents. Increasingly, research confirms that being exposed to natural wood has multiple positive effects on our sense of well-being. Exposed wood creates a warm and inviting ambience to any space, and multiple studies prove that people feel a sense of improved wellness when exposed to wood in a building.

For example, a study by Roger Ulrich compared the experiences of patients with views of a brick wall versus patients who saw wood, nature and trees. While patients had the same type of surgery and were matched for other demographics, patients with windows that looked out on trees and landscapes had improved health outcomes, from shorter hospital stays to enhanced mood and less reported pain.

Affordability

Like many community centres, John Morden Centre is a charitable foundation. The trustees wanted building materials that were both robust and affordable. Light-frame quality mass timber and pre-fab CLT can be particularly long-lasting and cost-efficient. Wood can be completed much and pre-fab CLT can be particularly long-lasting and cost-efficient. A study of one- to four-story light-frame buildings conducted by WoodWorks showed wood can cost 20 to 30 percent less per square foot than their non-wood competitors. Morden Centre was built in only 12 months.

Summary

Proven social, economic and environmental benefits exist from retrofitting instead of demolishing buildings. Sustainable, modern mass-engineered timber can greatly enhance these efforts when working with the existing fabric. The John Morden Centre beautifully exemplifies that repairing and maintaining buildings that are over 300 years old is possible.

Sustainability Information

212 tonnes of carbon dioxide was removed from the atmosphere when the trees were growing and stored in the wood over the building's lifetime

27 minutes is the amount of time it will take for the wood to grow back in the Austrian forests on a summer's day.

General

Delivery year

2019

Building type

Health

Area (m²)

911

Storeys

1



Photo credit: Jim Stephenson Architectural Photography & Films



Products

Products
CLT

Product volume (m³)
290



Photo credit: Ståle Eriksen with permission from Mæ Architects

Team

Partner of Stora Enso
Eurban

Developer
Morden College

Architect
Mæ

Structural Engineer
Michael Hadi Associates



Photo credit: Illustration of Morden College from John Strype's 'A Survey of the Cities of London and Westminster.' 1720c

Others

Construction duration (months)
12

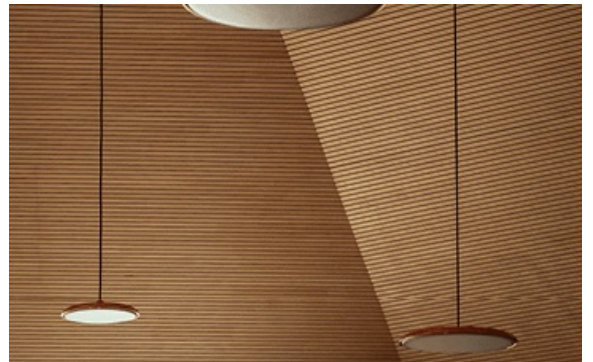


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