

DREADNOUGHT BUILDING - UNIVERSITY OF GREENWICH

Sensitively restored Grade II listed building

Project Name: The Dreadnought Building,
University of Greenwich

Company: B&K Structures

Sector: Education

Technology: Cross Laminated Timber (CLT)

Overview:

Famous for their historical learning environments, the University of Greenwich offers state-of-the-art education across their campuses in the old Royal Navy College, Avery Hill and Medway.

Offsite specialists collaborated to transform a former naval hospital in a UNESCO World Heritage Site into the Dreadnought Building at the University of Greenwich. The project required the refurbishment of the existing building, together with a new PEFC full chain of custody infill structure to the courtyard comprising visible grade cross laminated timber floor panels to the first and second mezzanine floor levels. At roof level, the design specified a combination of white wood spruce glulam beams and insulated timber roof cassettes.

B&K Structures were part of the team that sensitively restored the Grade II listed building by stripping it back and modernising it, ready for its role at the heart of the University. The Dreadnought building retains its character and sense of history while also providing a state-of-the-art hub, creating learning and gym facilities and a 500-person capacity bar, together with teaching and social spaces.

The design of the building targets both sustainability and Greenwich energy efficiency through the material selection of timber. The timber systems contribute to thermal and acoustic insulation, and the structure locks carbon within its fabric, an intrinsically sustainable and modern approach to construction that produces high-quality, high-performance buildings. Timber construction can achieve measured accuracy, together with a reduction in noise, onsite waste and the need for site storage.

CLT offers high strength-to-weight ratios that, in many cases, equal those of reinforced concrete. Cross laminated timber panels and glulam beams provide high levels of strength throughout the structure, both in-plane, resisting shear forces and carrying loads. The PEFC full chain of custody infill structure comprises 811m² of cross laminated timber visible grade floor panels to the first and second mezzanine floor level. At roof level, 57m³ of white wood spruce glulam beams and 570m² of insulated timber roof cassettes are joined to 70m of timber packers to fix to the top flange of the steelwork to the timber roof cassette connections. The tops to the building comprise a series of accessible green roofs with soil depths of as much as 600mm, which will be used for seminars and research.

Attended by 2,000 students, the Dreadnought Building opened in September 2018 and provides a home for the Students' Union and Student & Academic Services at the heart of campus life. Within the complex, the new University Library, School of Architecture and Construction buildings are arranged as a series of 'fingers', separated with open light-wells to fill the buildings with daylight.



