



VERT WAS CONSTRUCTED AT THE CHELSEA COLLEGE OF ARTS

Source: American Hardwood Export Council; Credit: Petr Krejčí

CASE STUDY: VERT

VERT SHOWCASES RED OAK GLULAM'S ADAPTABILITY

PROJECT OWNER: AMERICAN HARDWOOD EXPORT COUNCIL

PROJECT LOCATION: CHELSEA COLLEGE OF ARTS (TEMPORARY), LONDON (UK), LONDON, SW1P 4JU

COMPLETION DATE: WEDNESDAY, SEPTEMBER 11, 2024

ARCHITECT/DESIGNER: DIEZ OFFICE, OMC[©]

MASS TIMBER ENGINEER/MANUFACTURER: NEUE HOLZBAU AG

GENERAL CONTRACTOR: STAGE ONE

STRUCTURAL ENGINEER: BOLLINGER + GROHMANN

OTHER CONTRACTORS: AMERICAN HARDWOOD EXPORT COUNCIL (AHEC, COMMISSIONER), FORWARD STUDIO (ARCHITECTURAL CONSULTANCY), MOLA LEGNO AND THERMORY (TIMBER SUPPLIER)

VERT IS AN experimental structure designed to enhance biodiversity and improve the ecological footprint of cities, while showcasing the potential of red oak glulam. A temporary landmark project for the London Design Festival in 2024, Vert features a series of timber triangles that support suspended biodegradable nets, providing a framework for fast-growing climbing plants.

The triangular design ensures both robustness and modularity, making the structure adaptable to various urban environments. At its base, textile planters nurture a selection of 20 plant species,



VERT'S RED OAK STRUCTURE WAS A KEY FEATURE

*Source: American Hardwood Export Council
Credit: Petr Krejčí*

enriching local biodiversity while also contributing to temperature regulation in urban spaces.

The choice of red oak, the dominant hardwood species in North American forests, was strategic because of its strength, stability, and underutilization in Europe. This decision aims to expand timber options for construction and to promote the sustainable use of this abundant species, offering an alternative to more commonly used timbers.

A collaboration between the American Hardwood Export Council (AHEC), Diez Office, and OMC°C, the project was developed with expertise from Neue Holzbau, Bollinger + Grohmann, and Forward Studio. Vert pushes the boundaries of red oak glulam, showcasing its structural potential for large-scale applications. The density of red oak allows for smaller cross-sections, minimizing material usage while maintaining high strength.

Performance testing at Bern University has demonstrated that red oak surpasses European oak in tensile strength and structural integrity,

making it a superior choice for architectural applications.

Vert also incorporates thermally modified red oak for its decking. This chemical-free modification provides a long-lasting and environmentally friendly solution, reinforcing the project's commitment to sustainability.

Vert's design actively contributes to creating cooler urban environments, with the potential to lower surrounding temperatures by up to 8 degrees Celsius. The plant-covered sails of the structure can generate as much biomass as an 80-year-old tree in a single growing season, casting 4 times more shade than a typical 20-year-old tree. This capacity for biomass production and temperature regulation positions Vert as a vital component in urban ecosystems.

By leveraging red oak—a plentiful yet underutilized species—Vert promotes biodiversity and advocates for a shift toward more sustainable urban planning practices. The project addresses the challenges of rising temperatures and biodiversity loss and serves as a prototype for future urban greening initiatives.

In alignment with the London mayor's climate initiatives, Vert exemplifies an innovative and sustainable solution for cities facing ecological challenges, opening up conversations about what the future could look like. Its approach illustrates the potential for architecture and design to contribute positively to urban environments.

This case study has not been fact-checked, but it has been edited for length, clarity, grammar, and style. 🟢