



## MASS TIMBER IN THE FOREST

Source: ReArch Company, Inc.

### CASE STUDY: ADIMAB EXPANSION

# LIFE SCIENCES LEVERAGE TIMBER'S STRENGTHS

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**PROJECT OWNER:** ADIMAB, LLC

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**PROJECT LOCATION:** 7 LUCENT DR, LEBANON, NH 03766

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**COMPLETION DATE:** DECEMBER 31, 2023

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**ARCHITECT/DESIGNER:** CHRISTOPHER SMITH & SYLVIA RICHARDS

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**MASS TIMBER ENGINEER/MANUFACTURER:** ODEH ENGINEERS (ENGINEER)/BENSONWOOD (FABRICATOR/INSTALLER)/NORDIC (SUPPLIER)

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**GENERAL CONTRACTOR:** REARCH COMPANY, INC.

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**STRUCTURAL ENGINEER:** ODEH ENGINEERS

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**OTHER CONTRACTORS:**  
BENSONWOOD (MASS TIMBER CONTRACTOR)

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**WHEN ADIMAB, A** biotech company in New Hampshire, decided to expand their facilities, they looked to create a multistory timber structure to house new office, meeting, and lab spaces in as



### THE TIMBER FRAME

Source: Odeh Engineers; Credit: Kelly Price

sustainable a fashion as possible. In addition to using sustainable building materials, the project was also designed with a robust thermal envelope.

### SELECTING THE RIGHT STRUCTURAL SYSTEM

The primary floor area is made up of column and beam glulam construction that supports 1-way spanning Cross-Laminated Timber (CLT) floor and roof panels. Although the project was afforded modest floor-to-floor heights, the high demand for systems distribution associated with a lab facility would have conflicted with the architectural goals of clean ceiling lines if a traditional construction approach had been used throughout. Instead, the 2-way spanning capabilities of CLT are leveraged to create a pathway of beam-free mechanical, electrical, and plumbing (MEP) distribution corridors throughout the building. With the selected framing layouts, most elements of the MEP system have an unobstructed pathway through the building, reducing the need for coordinated beam and wall penetrations, freeing

up more head height, and creating more visually appealing spaces.

Interior CLT bearing and shear walls are used selectively, in conjunction with the post and beam construction, to help support the structural approach while creating unusual architectural moments in the space. These interior CLT walls are also used to supplement non-load-bearing exterior light-frame wood shear walls detailed to resist lateral forces only. Although CLT walls can provide unusual advantages for exterior wall construction, light-frame wood was selected to create well-insulated exterior walls with traditional detailing methods. To maintain a fast erection schedule, however, the contractor preferred not to use the exterior as bearing walls. Special care was provided in detailing to ensure that these exterior walls are compatible with the anticipated shrinkage of the timber structure.

### ACHIEVING LABORATORY VIBRATION PERFORMANCE

A concrete topping was selected to help meet acoustic and vibration goals of the project, but the CLT panels and plywood splines were used as the structural diaphragm to avoid the need for a thicker, structural concrete topping slab. With the effect of the noncomposite and nonstructural topping included, vibration analysis confirmed that the timber structure was adequate to create a high-frequency floor that met the needs of the client's laboratory equipment without significant enhancements to the primary structure. This performance was attributed to multiple design decisions, including a structural layout that respected timber's naturally tighter grid and isolating framing for corridors with higher walking speeds from the lab bench areas. 📍