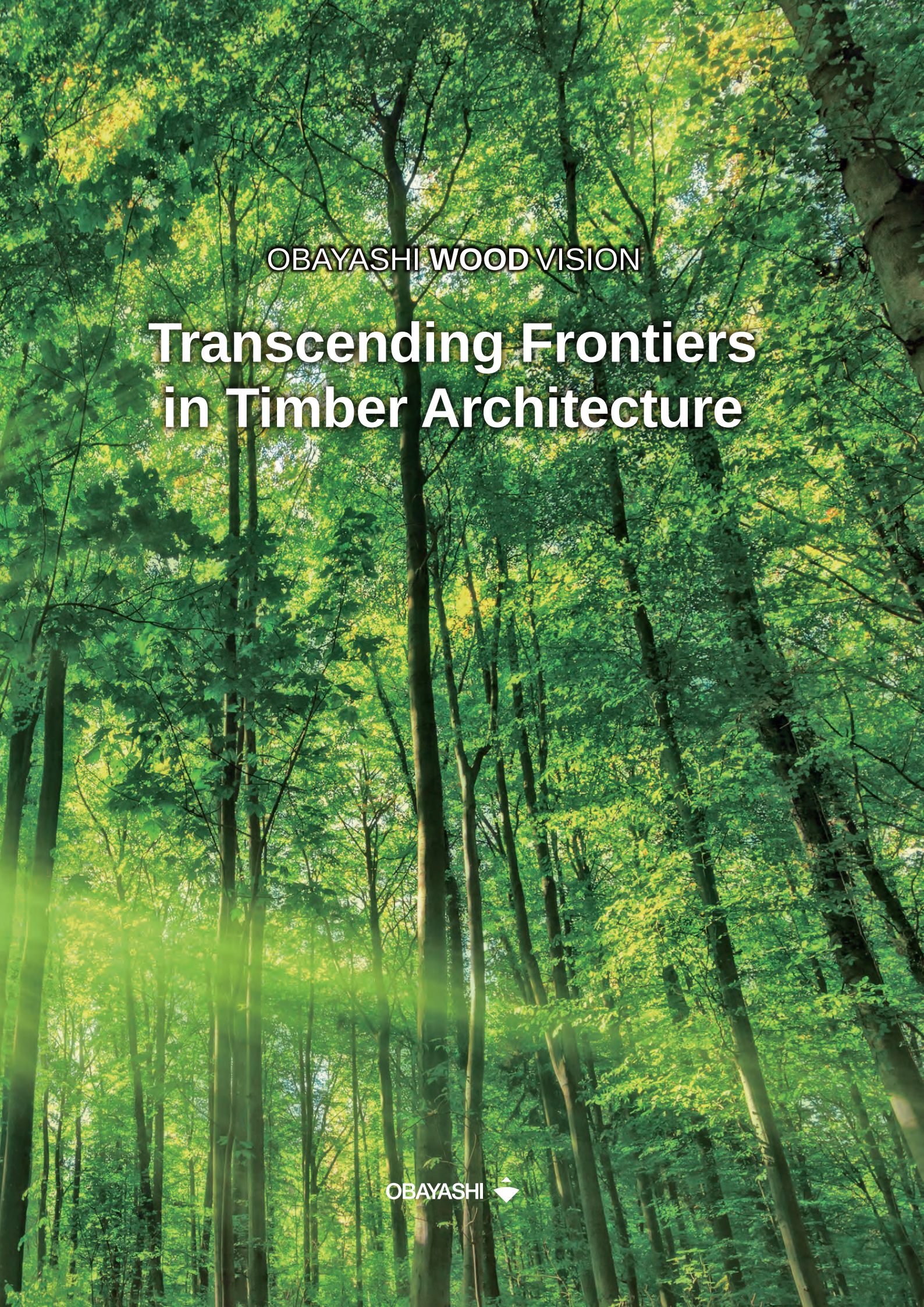


OBAYASHI **WOOD** VISION

Transcending Frontiers in Timber Architecture

OBAYASHI

Port Plus®: Japan's First Fully-Wooden and Fire-Resistant High-Rise Structure and the Benefits of Wood

※Port Plus® Obayashi Corporation Yokohama Training Center

Pure Timber Structure

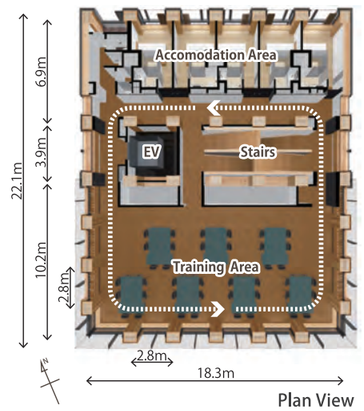
A High-Rise Building with Full Timber

※Structural components (columns, beams, floors, walls.)

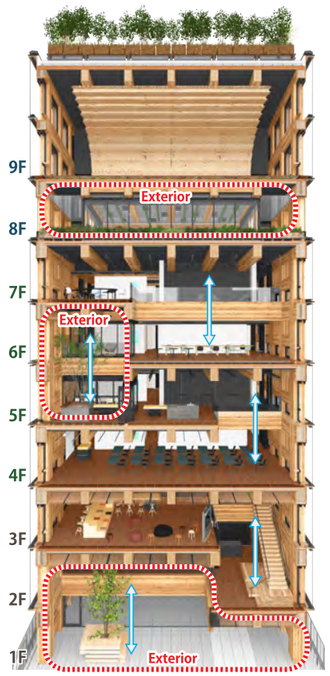
This is Japan's first fire-resistant high-rise building constructed entirely from timber structural elements above ground, while ensuring both seismic and fire safety. By extensively using wood, the building not only contributes to decarbonization, but also improves construction efficiency and enhances user comfort and wellness. Despite its urban location, the design incorporates open atriums and terraces to create a rich wooden space where light, wind, and greenery can be enjoyed.

Project Overview

Location / Area	Yokohama City, Kanagawa Prefecture (Fire Protection Zone)
Use / Scale	Training and educational facility / Total Floor Area: 3,502 m², Structure: 1 Basement Floor, 11 Above-Ground Floors
Structure Type	Above Ground: Timber Construction Basement: Reinforced Concrete (Seismic Isolation Structure)
Client	Obayashi Corporation
Design & Construction	Obayashi Corporation
Completion	March 2022
Certifications	ZEB Ready, LEED Gold, WELL Platinum WELL Health-Safety Rating, CASBEE Wellness Office: S Rank FSC Certification
Awards	64th BCS Prize, Good Design Award 2022 Wood Design Award 2022 – Minister of Forestry Award FY2022 Excellent Facility for Wood Utilization – Minister of Land, Infrastructure, Transport and Tourism Award Japan Spatial Design Award 2022 – Sustainable Space Award 26th Wood Utilization Competition – Grand Prize (Minister of Agriculture, Forestry and Fisheries Award)and more

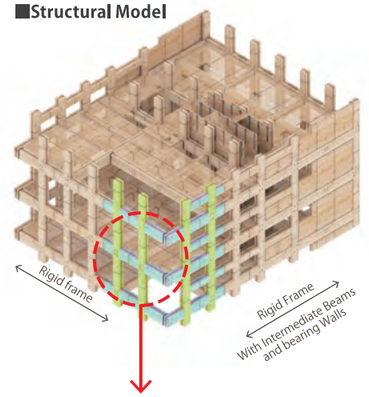


Plan View

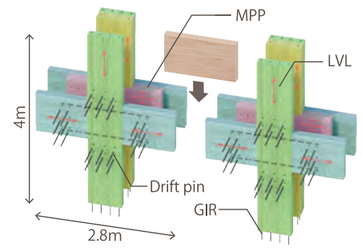


Section View

■Structural Model



■Rigid Cross Joints



GIR:Glue in Rod
LVL:Laminated Viener Lumber

The Benefits of Wood ① Decarbonization

Using Timber to Reduce CO_2 Emissions in Construction

Trees absorb carbon dioxide through photosynthesis as they grow. That carbon remains stored in the wood and is not released into the atmosphere as long as the timber is used in buildings.

Compared to steel or concrete, timber also generates significantly less CO_2 during material production — making it a more sustainable choice.

CO_2 emissions from Port Plus are reduced compared to 50% of steel structure and just 25% to reinforced concrete structure.

Amount of Wood Used 1,990m³ — Structural Timber : 1,675 m³, Interior Timber Finish : 315 m³

It is over one-third of the wood used in public facilities built in FY2020.

Biogenic Carbon Storage 1,652t-CO_2 — Calculated using a simplified CO_2 visualization tool developed by Japan's Forestry Agency

Equivalent to the amount of carbon absorbed over 50 years by a cedar forest 64 times the size of the planned site (3.6 ha vs. 565 m²).

CO_2 Reduction 1,700t-CO_2 — Comparison with steel structure based on estimated values from One Click LCA.

CO_2 emissions: approx. half that of steel structure and one-fourth that of reinforced concrete structure.

The Benefits of Wood ② Buildability

Shorter Construction Time and Lower Environmental Impact Through Timber

Timber is easy to process and allows for high-precision, consistent quality manufacturing in factories.

Its light weight makes it easy to handle, and by assembling prefabricated units on-site, construction time is reduced. This also minimizes noise and vehicle traffic at the site, helping to protect the surrounding environment.

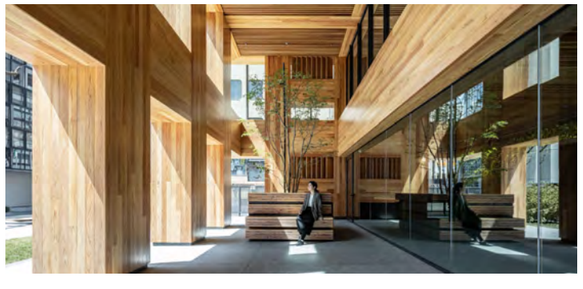
Port Plus provided for smoother on-site operations and greater consideration for the surrounding area.

The Benefits of Wood ③ Wellness

The Sensory and Emotional Benefits of Wood

Research shows that the natural scent and texture of wood can help reduce stress and improve concentration. Wood also helps regulate indoor humidity, feels warm to the touch due to low thermal conductivity, and offers a gentle, pleasant surface — all contributing to a healthier and more comfortable environment.

Port Plus is WELL PLATINUM certified.



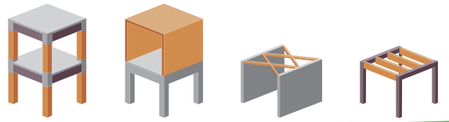
Diverse Applications of Timber Architecture

Wood Architecture

Timber finishes applied to interior and/or exterior surfaces enhance environmental performance and occupant comfort through natural humidity regulation, antimicrobial properties, and cognitive benefits.

Hybrid Timber Structures

Timber is strategically combined with steel or reinforced concrete to maximize material performance.
This method enables the construction of high-rise and large-span buildings while leveraging the benefits of wood.



Pure Timber Structures

All structural elements are made of wood.
Timber is lightweight and helps reduce CO_2 emissions through carbon sequestration.

Timber Usage

Curved Timber Ceiling Entrance

Office

FUJISOFT Shin-Nagoya-Building

A three-dimensionally curved timber ceiling creates an entrance space that naturally guides visitors inward.

Structure: Steel Structure (Seismic Isolation)
Design & Construction: Obayashi Corporation
Location: Aichi, Japan
Completion: 2023

Community "ENGAWA" Shaped by Eaves of Tama Timber

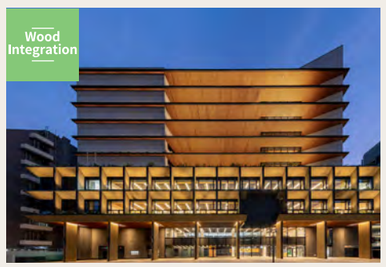
Mixed-Use Complex

GREEN SPRINGS

A deep eave made of Tama cedar creates a comfortable, welcoming space for all.

Structure: S, CFT, RC
Design: Yamashita Sekkei / Obayashi Corporation Design JV
Construction: Obayashi Corporation
Location: Tokyo, Japan
Completion: 2020

Civic Facade Framed by Timber Louvers



Government Buildings

Kobe Chuo Ward Office & Chuo Ward Cultural Center

Local wood is used in the eave ceilings and interior finishes.

Structure: S, RC, SRC
Design: Nihon Sekkei
Construction: Obayashi Corporation
Location: Hyogo, Japan
Completion: 2020

Theater Fully Embracing Local Cedar

Cultural Facilities

Takatsuki Arts Theatre

Wood is used generously—from the louvered exterior that merges with the park to the halls and furniture—highlighting the beauty of local cedar.

Structure：SRC, RC, S
Design：NIKKEN SEKKEI LTD
Construction：Obayashi Corporation
Location：Osaka, Japan
Completion：2022

Hybrid Timber Structure with Timber Columns and Steel Beams

Commercial **nonowa KUNITACHI SOUTH**

To ensure fire resistance, Obayashi combined its proprietary O･Mega Wood®TAIKA columns with fire-resistant hybrid timber beams. Rigid precast SRC joints support the structure, while the timber façade adds vibrancy to the station-front area.

Timber Columns × Steel Beams

Structure: Timber construction with partial steel framing
Design & Construction: Obayashi Corporation
Location: Tokyo, Japan
Completion: 2024

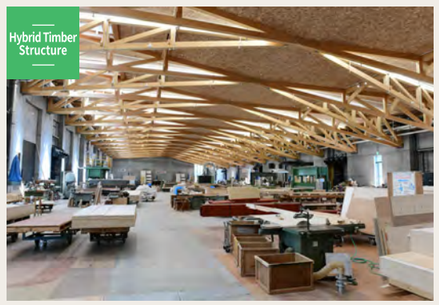
CLT Unit for Shorter Construction Time and Labor Efficiency

Employee Dormitories **Sendai Umeda Dormitory**

CLT units are factory-made and installed on-site, sized for easy transport even on narrow roads. Ideal for buildings with repetitive layouts like apartments, hotels, and hospitals.

CLT unit

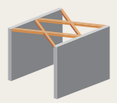
Structure: Timber (2nd and 3rd floors), Reinforced Concrete (1st floor), Partial Steel
Design & Construction: Obayashi Corporation
Location: Miyagi, Japan
Completion: 2023



Factory with Long-Span Trusses Using Standard Timber

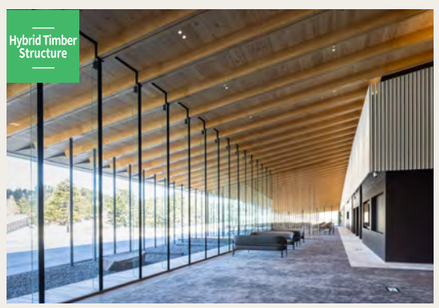
Factory **NAIGAI TECHNOS CORPORATION Factory Building**

Using Obayashi's O･Mega Wood® and standard timber, the design achieves a 28-meter column-free span. A unique method connects timber trusses to fire-resistant RC walls, enabling large-scale hybrid timber construction.



Long-Span Timber Truss

Structure: Timber, RC, S
Design&Construction: Obayashi Corporation
Location: Saitama, Japan
Completion: 2023



Large Roof with Long-Span Timber–Steel Hybrid Beams

Sports & Leisure **Ichihara Golf Club Ichihara Course Clubhouse**

Hybrid beams of timber and steel support a spacious roof like oversized rafters, shaping a distinctive interior. The curved ceiling is finished with wood paneling, creating a clubhouse that gently connects indoors and outdoors.

Timber x Steel Beams

Structure: S, Timber
Design& Construction: Obayashi Corporation
Location: Chiba, Japan
Completion: 2022

Japan's First Fully-Wooden Fire-Resistant High-Rise Structure

※Structural components (columns, beams, floors, walls)

Training

Port Plus Yokohama Training facility

As a prototype for urban high-rise timber buildings, this project tackled key challenges in design, sourcing, processing, and construction. Pure mass timber, it contributes to carbon neutrality by creating a "second nature" in the city.

Structure: Timber (base-isolated structure)
Design&Construction: Obayashi Corporation
Location: Kanagawa, Japan
Completion: 2022

Warm Timber Office with Glulam and CLT Walls

Office **NAIGAI TECHNOS CORPORATION Office Building**

A simple 3.6-meter grid and house-shaped frame create an open-plan workspace using glulam columns and beams with CLT bearing walls. Passive design and natural ventilation help achieve ZEB Ready performance.

Structure: Timber
Design&Construction: Obayashi Corporation
Location: Saitama, Japan
Completion: 2023

*Steel Structure (S), Concrete-Filled Steel Tube (CFT), Reinforced Concrete (RC), Steel Reinforced Concrete (SRC)

Obayashi's Timber Projects

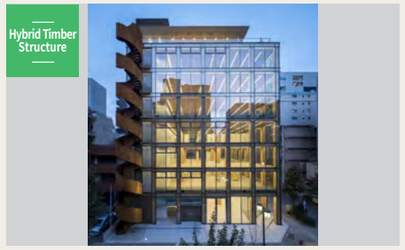
Creating a Hub for Tourism and Community through Diverse Use of Local Timber

Cultural & Commercial

Nara Prefectural Convention Center

Aiming to contribute to the forestry industry, this facility explores diverse applications of Nara-grown timber throughout its architecture.
Under a large-span, column-free roof constructed with a hybrid structure of laminated Yoshino cedar and steel, the space fosters vibrant interactions and serves as a dynamic center for community exchange.

Using CLT as Concrete Formwork and Finish Material



Office

Tamadic Nagoya Building

CLT was used as concrete formwork and left exposed as the column finish, creating a warm, wood-lined office space.
The building features a hybrid timber structure using an uncommon construction method.

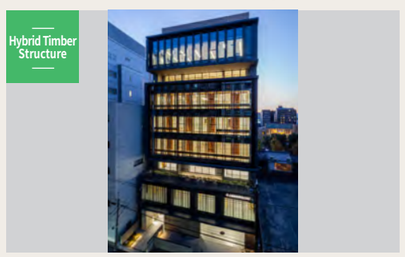
Warm Spaces Shaped by LVL Timber Roofs

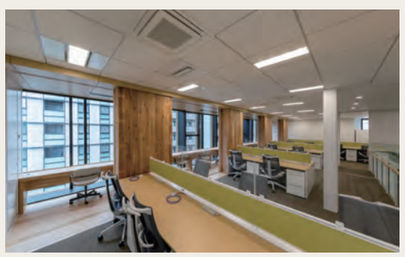
Commercial

Manda Fermentation HAKKO Gate

This multi-purpose facility features three curved timber roofs of varying heights, echoing the landscape of the Seto Inland Sea.
LVL ribs are evenly spaced beneath wooden roof panels, forming a generous, wood-lined canopy.

Multi-Functional "ENGAWA" Space with CLT Shear Walls



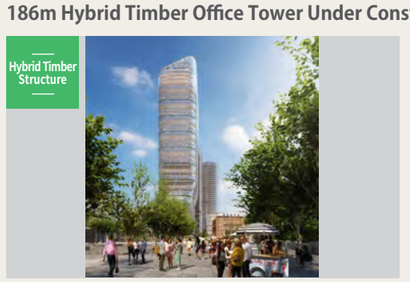


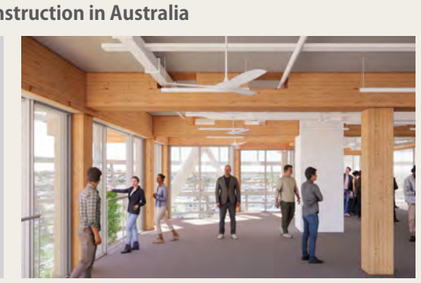
Office

Uehara Sei Shoji Headquarters Building

Inspired by the layout of traditional Kyoto townhouses, this office building features a layered design.
The engawa-like window-side space is subtly divided from the work area by exposed CLT shear walls and wooden lattice sliding doors, providing a focused zone for individual tasks.

186m Hybrid Timber Office Tower Under Construction in Australia





Mixed-Use Complex

Atlassian Central

From the 7th floor to the top, the building adopts a hybrid timber structure combining a concrete core, steel mega floors, external steel frames, and timber elements (CLT and GLT).
Carbon emissions during procurement and construction are reduced to less than 50% of conventional buildings, with the goal of operating entirely on renewable energy after completion.

Training Iwatani Corporation Kobe Training Center

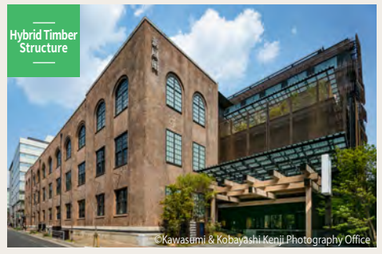
Hotel Caption by Hyatt Kabutocho Tokyo

University Kindai University Faculty of International Studies Building

Welfare MIYARISAN PHARMACEUTICAL Sakaki FactoryWelfare Building

Hotel THE HIRAMATSU KYOTO

Commercial Facilities & Hotels ShinPuhKan

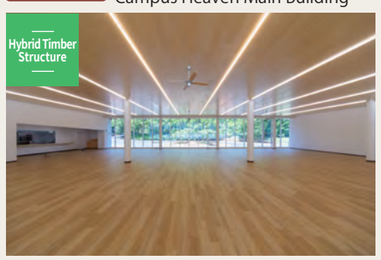


Office DISCO Corporation Kyushu Branch

Grandstand JRA Kyoto Racecourse

R&D Keyaki Terrace, Obayashi Technical Research Institute

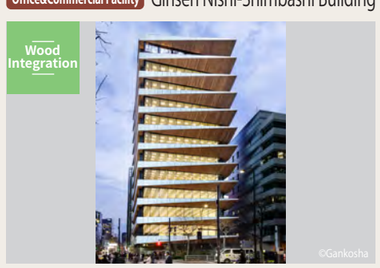
Office Suruga Bank Campus Heaven Main Building



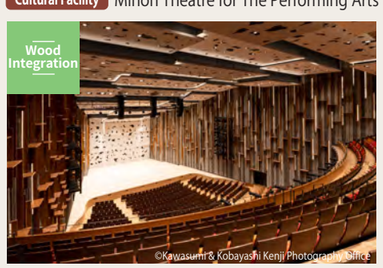
Warehouse Nisshin Timber Warehouse Building

Factory Shinei Kumano Worksite Extension

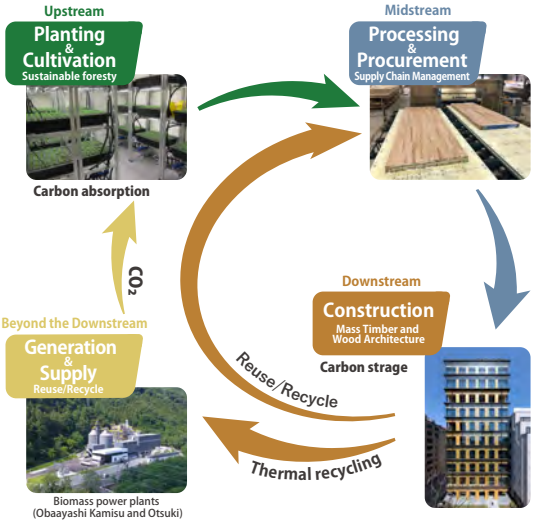
Office&Commercial Facility Ginsen Nishi-Shimbashi Building



Cultural Facility Minoh Theatre for The Performing Arts



Station Takanawa Gateway Station



OBAYASHI **WOOD** VISION

Circular Timber Construction®

A Symbiotic Circular Model Powered by Timber

Obayashi is committed not only to promoting timber construction, but also to revitalizing the entire timber lifecycle—from upstream to downstream and beyond.

Through this approach, we aim to sustainability use forest resources and foster a society that respects the natural world.

MAKE BEYOND

TRANSCENDING THE ART AND SCIENCE OF MAKING OF THINGS

OBAYASHI CORPORATION

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