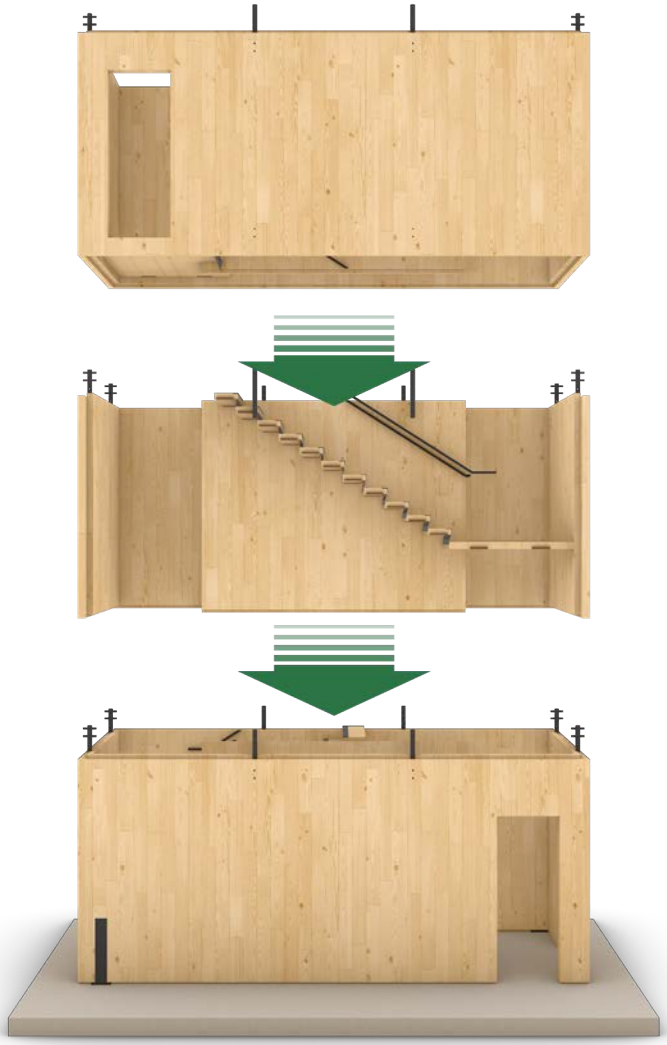
TIMBER CORE™

ELEVATE YOUR BUILD

PRODUCT GUIDE

A PRODUCT OF
CARPENTRY PLUS, INC.

2026 EDITION



TIMBER CORE™

Timber Core is a prefabricated modular mass timber stair core system. Each module arrives at the construction site ready to be installed, with placement of each module taking less than hour, resulting in the installation of up to 8 modules or approximately 75 feet in just a day.

Each module consists of CLT walls and glulam landings and treads and includes everything you would expect in a stair tower - handrails, lighting, toekicks, and nosings. The result is fully OSHA-compliant project access which also serves as an IBC-compliant stair system in the final building.

Timber Core can be used in any building where wood construction is allowed, which includes Construction Types III, IV-HT, V, and in some cases, IV-A, -B, and -C. It works for a variety of building occupancies and integrates with all construction materials, including mass timber, light-frame wood, steel, cold-formed steel and concrete. Additionally, it meets requirements for a 2-hour fire resistance rated shaft without the need for additional finishes.

CARPENTRY PLUS, INC.

CARPENTRY PLUS INC
A MASS TIMBER COMPANY

Carpentry Plus, Inc. began in 1993 as a family-owned wood construction company delivering consistent, high-quality results. Over the years, our company has evolved to focus on mass timber construction, now completing more than 200 mass timber projects throughout the country. We have grown to more than 30 employees, but our focus remains on delivering reliable, exceptional projects.

Timber Core was borne out of the first-hand field experience of the Carpentry Plus, Inc. team and a desire to provide safe, reliable, and fast project access, overcoming one of the challenges often associated with typical stair systems. The Timber Core system exemplifies Carpentry Plus, Inc.'s dedication to innovation, collaboration, and improving construction practices.

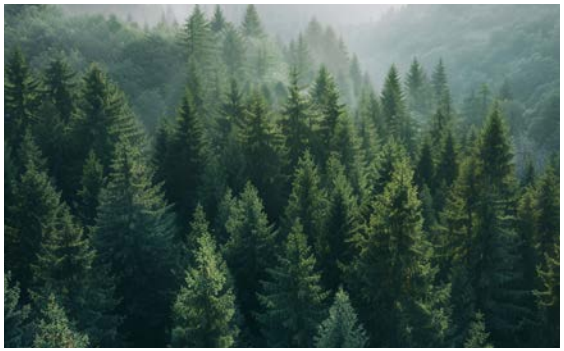
TIMBER CORE ADVANTAGES

FAST

- Modules delivered directly to project site fully fabricated and ready for installation
- Each module can be fully installed in less than 1 hour
- Up to 8 stories, or approximately 75 feet, can be constructed within a single day without the need for shoring or scaffolding
- Allows for immediate access to upper stories
- Provides time savings of up to 60x compared to traditional masonry cores

SAFE

- Provides OSHA-compliant, well-lit building access during construction
- Eliminates need for temporary vertical access (stairs, ladders, scaffolding)
- In finished building, provides IBC-compliant egress stairs, handrails and lighting
- Satisfies requirements for 2-hour fire resistance rated shaft
- Designed for construction phase seismic and wind performance



SUSTAINABLE

- Constructed using sustainably sourced CLT and glulam
- Up to 170% embodied carbon reduction compared to traditional masonry stair cores
- Off-site fabrication reduces job-site waste

Glulam landings, elevations as required to align with floors (3 1/8" thick)

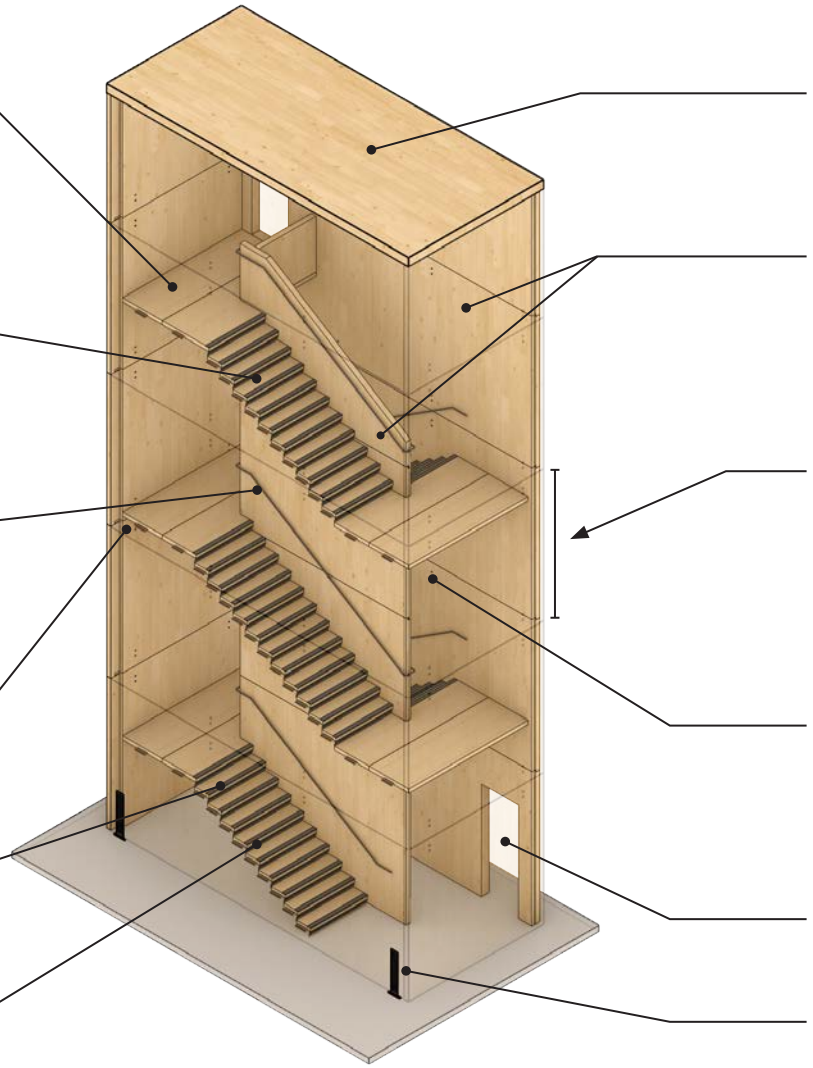
Glulam treads (3 1/8" thick 12" deep with 1" overlap between treads)

Steel pipe handrail (1.66" diameter)

Lighting under each stair landing

Nosings (3" deep)

Perforated steel toe kicks



CLT roof, height as required (4 1/8" thick)

CLT walls (6 7/8" thick at exterior, 4 1/8" thick at interior and upper level guardrail)

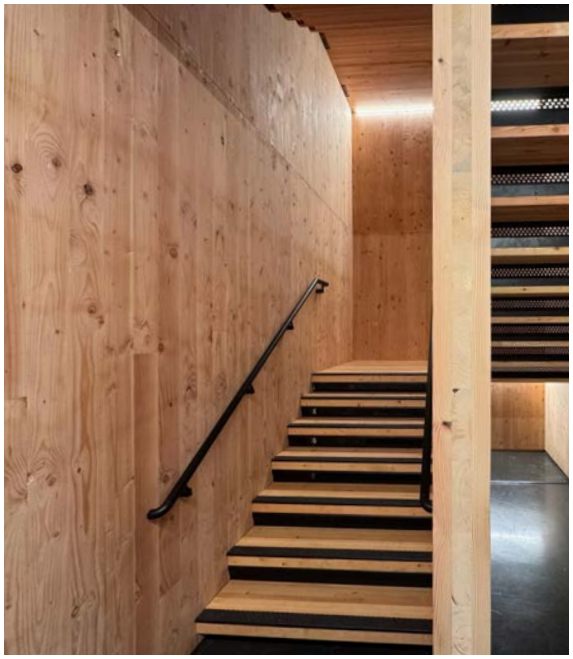
Module height maximizes CLT panel widths and is not depended on story heights

Module to module alignment aids and additional connections between modules as required

Coordinated openings

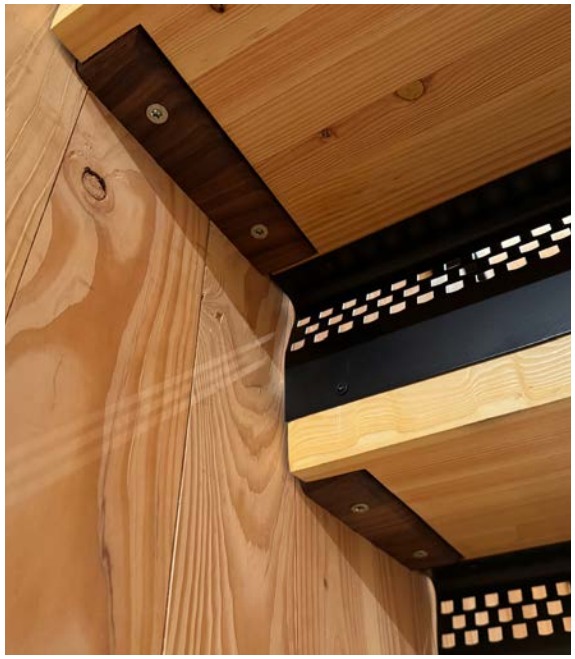
Connections at base as required

THE DETAILS MATTER



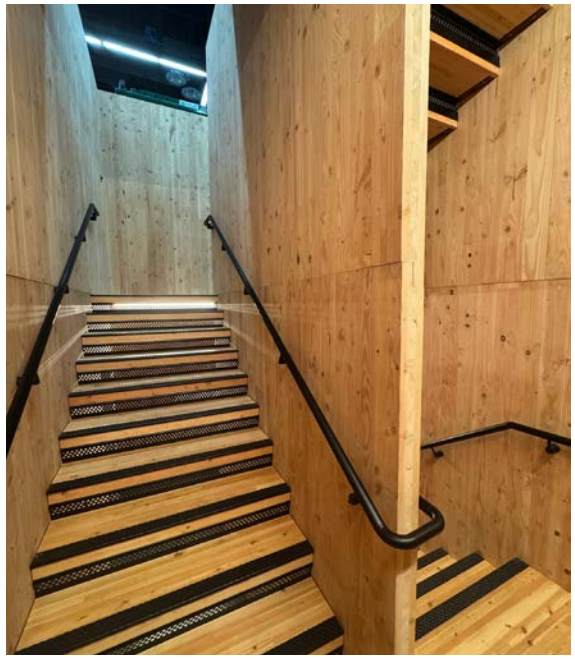
EXPOSED MASS TIMBER

At the interior of the stair cores, the CLT walls and glulam treads and landings are intended to be exposed, providing a warm, inviting stairway. The treads and landings are finished for additional durability and longevity. And, if desired, the CLT at the exterior of the core can remain exposed as well.



FOX WEDGE HARDWOOD TENONS

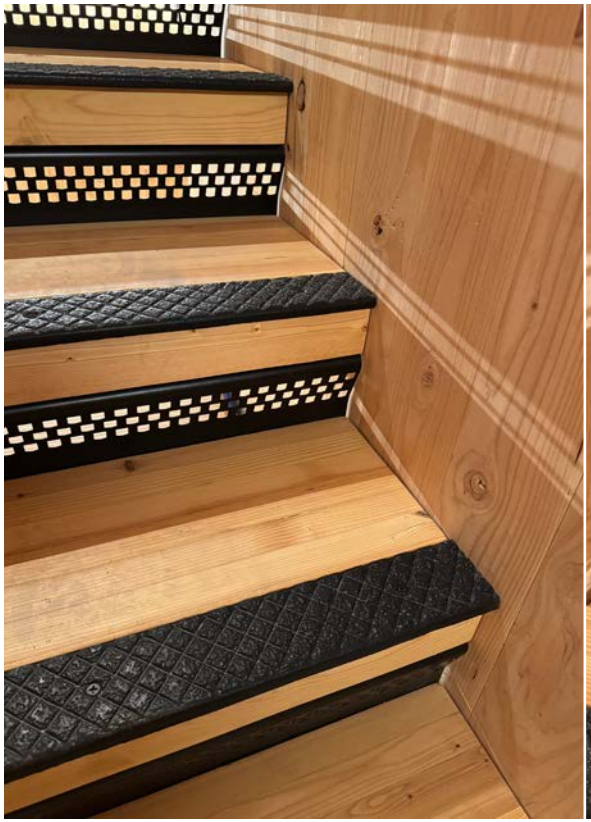
Building on Carpentry Plus, Inc.'s carpentry roots, landings and treads are supported by black walnut fox wedge tenons. These precision-crafted connections create a clean, seamless look while allowing individual treads to be easily replaced if needed.



CUSTOM STEEL HANDRAILS

Along both sides of the stair runs, IBC code-compliant steel handrails are included. The handrails are detailed and custom tailored to meet each project's required geometry.

THE DETAILS MATTER



POWDER-COATED NOSINGS AND TOEKICKS

To further improve durability, each stair tower comes with pre-installed nosings and toekicks. Both components are powder-coated black, providing a tough, wear-resistant finish that holds up well to heavy use over time. This factory-installed approach ensures consistent quality, reduces field labor, and delivers a clean, finished look while protecting high-contact areas from damage.

INTEGRATED LIGHTING

To provide immediate lighting and a safer work-space, lights are included in Timber Core. Wiring can be installed and hidden in integrated channels.

ON SITE MANAGEMENT

DELIVERY

Fully assembled modules are delivered to the jobsite, sequenced for immediate installation upon arrival. During transport, each unit is carefully wrapped in a protective membrane to shield it from road debris and weather exposure.

This approach minimizes site handling, reduces schedule risk, and ensures the modules arrive ready for efficient, streamlined installation.

INSTALLATION

Timber Core can easily be installed using the crane that is already on site.
The custom Timber Core rigging bar* and hoisting pipes make lifting and stacking the modules seamless.

After placement of the modules, completion of the stair core is straightforward, only requiring installing connectors at the base and between modules, removing temporary bracing, and connecting the power.

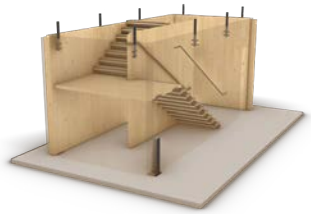
** Refundable deposit required for rigging bar*

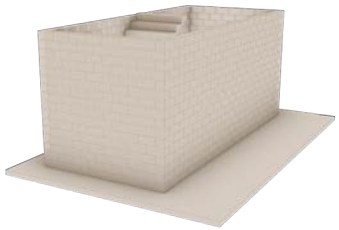
PROTECTION

We know that construction can get messy - to preserve the CLT and glulam, the lower portion of the walls, treads and landings are protected with pre-installed coverings. The exterior of the stair core is covered with a weather-resistive barrier for protection during the duration of construction.

UNDERSTANDING THE COST

Timber Core is an all-inclusive system, as opposed to traditional stair cores, made up of various components requiring involvement by multiple disciples. When pricing Timber Core for a project, a holistic view is helpful.





	Timber Core	Traditional CMU

Materials	• Timber Core
	  › Walls
	  › landing and treads
	  › handrails
	  › lighting
	• Optional finishes at exterior face of walls
		• Masonry block, grout, mortar, steel reinforcement
		• Structural steel framing and stringers
		• Concrete-filled metal pan stairs and landings
		• Handrail hardware
		• Lighting system - including fixtures, wiring, and drivers
		• Potential finishes interior and exterior at faces of walls

Trades	• General contractor	• Mason • Concrete Mason • Ironworkers and welders
Equipment	• Crane	• Crane • Temporary vertical construction access, such as stairs, ladders, and/or scaffolding
Installation Time	• Approximately 1 day per tower	• 3 or more weeks for construction + grout and concrete cure times

COMPONENTS

WALLS & ROOF:

- CLT with custom-located door and window openings[a]
  - 5-ply exterior walls
  - 3-ply interior walls
  - 3-ply partial-height guardrail at uppermost level
  - 3-ply roof at upper module
- Visual face provided at inside face of exterior walls[b] and both faces of interior walls
- Visual faces and edges shop-coated with Sansin KP-12 protective undercoat[c]

TREADS AND LANDINGS:

- 3 1/8" Douglas fir glulam treads and landings with penetrations as required for fire risers[a]
- All sides finished with Rubio Monocoat Oil Plus 2C (Pure)
- Treads and landings supported at underside by black walnut fox wedge tenons
- American Safety Tread alumacast nosing with black semi-gloss powder coat finish
- 14-gauge steel perforated toe kicks with black semi-gloss powder coat finish[d]

ACCESSORIES:

- 1.66" diameter (1 1/4" Schedule 40) pipe handrails with wall-mounted brackets
- Lighting under landings
- Construction phase protection of mass timber elements[e]:
  - Modules protected with 9 mil waterproof shrink wrap film during transportation
  - Landings protected with felt backed SkudoBoard[c]
  - Stair treads protected with 4'-0" wide SkudoBoard Stair/Corner Guard[c]
  - Lower 40" of interior wall surfaces protected with Skudo Tack-Mat LT[c]
  - Exterior surfaces protected with water-resistive vapor-permeable membrane, either mechanically fastened VaproShield WallShield IT[c] or self-adhering VaporShield PanelShield[c]
- Connection materials as required between adjacent modules
- Connections and hold downs at base as required[f]
- Trucking delivery of Timber Core to project site[g]
- Rigging assembly available for installation of modules by crane[h,i]
- Timber Core representative available for on-site consultation during delivery and installation

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[a] Opening sizes and locations to be coordinated by design team and Carpentry Plus, Inc.

[b] Option for visual face at outside face of exterior walls (subject to additional cost).

[c] Similar performing alternate may be used.

[d] Perforation pattern consists of horizontal ovals.

[e] Maintenance of temporary protection material during project construction and removal of material upon project completion is the responsibility of the customer.

[f] Foundations and any concrete anchors to be installed by others prior to Timber Core installation. Foundation and anchorage design to be provided by the project structural engineer of record.

[g] Offloading of Timber Core from truck is the responsibility of the customer.

[h] Placement, hoisting, installation, crane, and on-site coordination are the responsibility of customer.

[i] Rigging assembly requires deposit, refunded upon return of the assembly.

DESIGN PARAMETERS

STRUCTURAL DESIGN:

Timber Core is designed for two unique structural conditions: the construction phase and the final project conditions.

During the construction phase, Timber Core is designed to be a stand-alone structure, capable of free-standing up to 75 feet, and in some cases potentially more. For each project, Timber Core is designed and detailed to account for the project location, taking into account required wind and seismic loading.

Forces that may occur during shipping and erection are taken into account, with any necessary bracing members included.

In Timber Core's final condition within the building structure, Timber Core can be included in buildings of any height. The stair system is capable of supporting gravity loading from the primary structure and is detailed for compatibility with the primary lateral system. In low-seismic projects, Timber Core may even be used as part of the lateral force resisting system.

FIRE PROTECTION:

Timber Core is able to achieve 2-hour fire resistance rating without the application of any additional requirements, meeting the IBC shaft requirements. This is primarily due to the inherent fire resistance of mass timber elements, outlined in Chapter 16 of the American Wood Council's National Design Specification for Wood Construction. At connections between Timber Core modules, the fire rating is provided by half-lap connections, which have been shown to achieve 2-hour fire ratings through various tests.

With Timber Core's CLT surface serving as the interior stair tower finish, it is also important to meet the fire performance and smoke development specifications outlined in IBC 803.13. For the majority of occupancies, a finish class B is required, which is achieved by the CLT panels without any additional finishes or protection materials.

DIMENSIONAL CRITERIA:

Because Timber Core is custom fabricated for each project, it can be adjusted for compatibility within a building. The width, length and height can all be adjusted to fit the project requirements.* Standard doorways are provided at landings, with the potential for additional door and window openings in the walls.

*Timber Core widths are typically limited to 12'-0" to account for transportation limitations, however, for projects requiring wider stairs, please reach out to Carpentry Plus, Inc.

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CONTACT

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