

What to Know About T3

THE NEXT GENERATION OF MODERN OFFICE



UNDERSTANDING THE BASICS

What does T3 stand for?

Timber. Transit. Technology

People are naturally drawn to T3 buildings, which has helped Hines clients attract and retain great talent.

What is T3?

T3 is our building model for positive change. Our proprietary mass-timber product, T3 blends the inspiring, natural feel of timber spaces with the exceptional efficiency and cutting-edge technology of our best-in-class buildings.

Are there rules to be considered a T3?

A T3 building must:

1. Be primarily constructed from mass timber, and timber elements must be visible.
2. Be set in an amenity-rich environment and be walkable to, or located within, an amenity-rich environment. More specifically - e.g., bars/restaurants/shops. It also must solve for 'amenity' duplicate use.
3. Have access to diverse transportation options such as walk, bike, rail, skate, bus, train vs sole reliance on cars.
4. Be technology-rich and have substantial investment to achieve - at minimum - Wired SCORE Gold, LEED Gold, WELL Gold (or local equivalents).
5. Be highly-amenitized for talent. There must be a substantial and diverse investment in building amenities to support recruitment and retention.

Is T3 only office?

For now, yes. We are investigating the feasibility and impacts to incorporating mass timber into our industrial and residential platforms to see if we can take what we have learned from T3 and carry it over.

How many T3 projects are in the Hines portfolio?

As of December 31, 2022, our T3 portfolio of 26 includes two buildings complete, nine under construction (with five of those to be completed in 2023) and 15 in design, schematic design, and master planning phases as well as those working through entitlements/permitting and currently bidding.





FROM TREE TO T3

How many trees does it take to build a T3 building?

It's difficult to find detailed information on how much wood is required to design mass timber buildings. There is no doubt that these values would differ substantially depending on the design of each building. The building's square footage, interior and exterior design, and other features would influence the total volume of wood required.

What types of wood are used?

The type of wood will vary depending on what part of the world the system is manufactured. Only trees such as black spruce and jack pine are harvested. Other trees that are not suitable for mass timber or dimensional lumber, such as birch, are not harvested.

Are all T3 projects built with FSC certified timber? If not, how does Hines quantify sustainability managed timber?

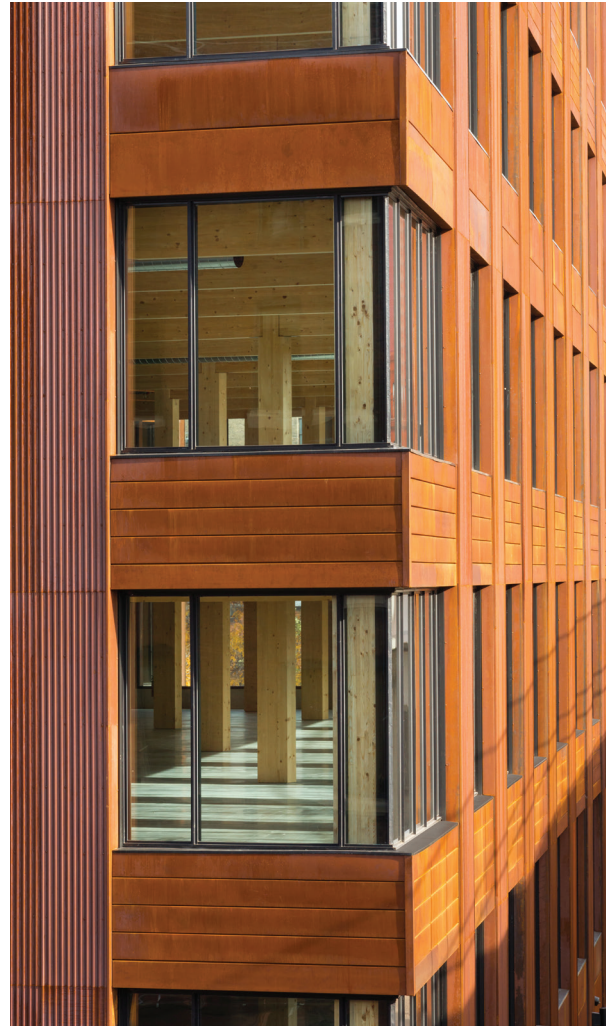
Not all suppliers use FSC. There are other certifications that also offer essentially what FSC offers, and some use those systems. Typically, the specs are written such that they have to meet certain criteria and the certifications can be one of the numbers that can show compliance.

Where do the trees come from?

The trees we use at Hines come from responsibly harvested forests/ certified sustainable forests. The forests in the U.S. and Canada, for example, reproduce the timber required for T3 buildings every 20 minutes.

One of the manufacturers that we use on number of our projects—T3 RiNo, T3 FAT Village, T3 Bayside, T3 ATC— is Quebec-based, however, sometimes the timber comes from as far as Europe. For our projects, we do look at multiple firms that are dedicated to engineered wood products for the construction industry.

At T3 West Midtown in Atlanta, the Dowel Laminated Timber (DLT) panels are sourced from a combination of spruce, pine, and fir trees from the West Coast (Northern California into British Columbia). The Glued Laminated Timber (glulam) columns and beams are sourced from spruce trees in Austria.



ESG

Is T3 a sustainable product type?

With mass timber as the structural system of the project, T3 is an environmentally friendly and sustainable building type. Under the right circumstances, timber construction can significantly reduce embodied carbon in a building.

What about sequestered carbon?

This varies with each property, but unlike any other major building material, wood sequesters carbon, or it stores it. When a tree is taken and used in a building that will last for centuries, that piece of wood is storing that carbon dioxide in the material for the life of the building.¹

How much carbon is saved, exactly?

In the construction process, timber generates around 50% lower CO₂ emissions than concrete.²

The actual number of carbon savings, or any ESG-specific stats will vary project by project. For example:

T3 MINNEAPOLIS

- Utilizing wood avoided 1,540 tons of CO₂ emissions in the building
- More than 3,860 tons of CO₂ stored in the structure of the building
- 180,962 cubic feet of wood was used to build the project

T3 WEST MIDTOWN, ATLANTA

- It is estimated that the timber used for T3 West Midtown holds as much carbon as nearly 1,000 cars being taken off the road

T3 BAYSIDE, TORONTO

- T3 Bayside is expected to emit LESS total carbon over a 60-year lifecycle compared to a conventional concrete building that achieves lower Tier 2 carbon emissions from operational energy

T3 STERLING ROAD, TORONTO

- An estimated 3,646 metric tons of carbon will be stored in the timber structure of this modern office campus
- Compared with steel or concrete, T3 Sterling Road's timber construction avoids emitting approximately 1,411 metric tons of carbon dioxide into our atmosphere
- T3 Sterling Road's timber structure comes from young trees, which are more readily renewable and protect our old-growth forests

T3 WEDGEWOOD HOUSTON, NASHVILLE

- Nearly 2,750 tons of CO₂ stored in the structure of the building
- Utilizing wood avoids 1,063 tons of CO₂ emissions in the building
- Total potential carbon benefit is 3,812 metric tons of CO₂, which is equivalent to taking 806 cars off the road for a year, or energy to operate 403 homes for a year

T3 EASTSIDE, AUSTIN

- 92,338 cubic feet of wood will be used to build the project. U.S. and Canadian forests grow this much wood in seven minutes
- 2,327 tons of CO₂ stored in the structure of the building
- Utilizing wood avoids 900 tons of CO₂ emissions in the building
- Total potential carbon benefit is 3,227 metric tons of CO₂, which is equivalent to taking 982 cars off the road for a year, or energy to operate 341 homes for a year





ESG (CON'T)

Are there any energy savings associated with a timber building?

Timber is a very energy efficient building material as its low thermal conductivity minimizes the potential for heat loss, which makes timber a great material for energy efficient designs. It also has a high standard of thermal comfort while consuming minimal non-renewable energy.

Data from past mid-rise office projects has shown a significant reduction in life cycle impact for a timber structure, as compared to a concrete or steel structure. The timber structure is less energy-intensive to extract and is renewable with minimal inputs.³

Does using timber reduce embodied carbon?

It can. For example, the electrical grid in Toronto is already very low carbon intensity, due to significant use of hydro and nuclear power. This means that the more pressing concern is embodied carbon, which is where we chose to focus the significant amount of our investment through utilizing timber as the structural component.

Isn't cutting down trees bad for the environment?

If timber is sourced from sustainably managed plantations, instead of natural forest, it can help reduce deforestation. Mass timber can make use of undesirable trees, helping to thin out crowded forests and make room for better forestry practices in the future.⁴ In addition, to sustain forests, T3's construction uses young trees instead of old growth trees.

T3 West Midtown in Atlanta, our second T3 project completed in 2019, utilized beetle-kill wood, also known as dead standing timber, harvested from forests devastated by pine-bark beetles. Demand for beetle-kill wood is helping to promote responsible forestry and mitigate wildfire risk in the U.S.

At Nordic Structures factory in Chibougamau, every time they cut down one tree it's replaced by three. The root of the tree is left in the ground, so as not to disturb it and during harvest, they leave 15 feet of trees around wetlands, lakes, and roads to ensure minimal disruption to wetland and animals. Their process is to take the whole tree to their plant (just take off branches) instead of cutting it up into logs first (which is what most factories do). No waste is involved with chopping down trees, and they use the discarded 'scraps' for other purposes such as heat/electricity generation and paper production.⁵



CONSTRUCTION

Is using timber more expensive?

Rapidly renewable and cleaner than concrete, sustainably sourced timber is slightly more expensive than traditional building materials, but it shortens the construction duration of T3 projects significantly.⁶

Are there any limitations on height/construction? (Particularly as a result of building codes - IBC or city-specific?)

Yes. Under 2021 International Building Code ("IBC"), buildings can be up to 18 stories tall. However, there are several exceptions to this rule, and different cities or states or provinces may have other rules that are more or less stringent than the IBC. For example, in Nashville, there are more restrictive code requirements.⁷

In addition certain jurisdictions may impose other restrictions in addition to height limitations. These include items such as requiring a certain amount or percentage of the timber to be encapsulated, rather than exposed.

<p>Type IV-A (all mass timber elements fully encapsulated and up to 18 stories)</p>	<p>Type IV-B (protected exterior, partially exposed interior mass timber elements and up to 12 stories)</p>	<p>Type IV-C (protected exterior, exposed mass timber interior and up to 9 stories)</p>
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What is a T3 building made out of?

Mass timber technologies employed by Hines include cross laminated timber (CLT), dowel laminated timber (DLT), nail laminated timber (NLT), and glue laminated timber (GLT). The material varies by project. All of our T3 projects use GLT columns and beams, but the floor decking system can vary. For example, T3 Sterling Road in Toronto uses a combination of dowel-laminated timber (DLT) for the ceilings/floor and CLT for the columns. T3 Bayside in Toronto uses CLT for both the ceilings/floor and columns. T3 Minneapolis used Glulam columns and beams and NLT slabs.



TENANT BUILD OUTS

Can I modify the space? What happens if I need to update the infrastructure?

One of the benefits of T3 is that the core of the building is considered finished, so no retrofitting is needed. A perk of building with timber is the ability to utilize the timber itself as a design feature, which means tenants can theoretically reduce the amount of work they do in the space prior to moving in.

However, a tenant may come in and change the space if desired. Should a tenant choose to make any modifications, there are only minimal differences between what can be done on a timber building vs. what can be done on a traditional steel and/or concrete structure. There are no issues with typical modifications such as floor coring, drop ceilings or partitions.

How does the HVAC system work?

Hines designs T3 with an air-cooled multi-zone system. This can reduce tenant buildout costs by \$10+ per square foot depending on the style of space (open office vs. private office). Note open office configurations require less tenant investment. What this system does is provides air to zones on the floor and eliminates the need for tenant control boxes in the space. If a tenant wishes to have more independent control for private offices, then the tenant may elect to convert a zone into a medium pressure duct run and add a variable air volume (VAV) system or Fan Powered Terminal Units (FPTUs) in lieu of the multi-zone control.





AGING AND SAFETY

How does it age? Will the timber components gray/crack over time?

Checks and cracking are a natural part of timber buildings and add character and uniqueness to the structure. They do not compromise structural integrity and will most likely close or shrink as the timber dries over time. It's a natural side effect of the wood's inclination to reach equilibrium with its surroundings.⁸

Think about how often you see old, timber-structure churches and other buildings when you're travelling through Europe, as an example of how these buildings are able to last for centuries.

What is the life expectancy of a T3 building?

With proper care and maintenance, timber buildings can last the 'test of time' and should function for well over 100 years.⁹

How does it compare to standard office buildings?

There is no difference between the life expectancy of a timber building vs. a concrete and/or steel structure.¹¹

Is there an increased risk of fire, earthquake, flood, etc? Is timber/wood construction safe?

Timber being more prone to fire is a misconception. In a fire, timber is far better than steel because when timber reaches a certain temperature, it still maintains its strength all the way through. Timber is actually designed to what they call a char rating. Wood can burn for two hours before it reaches a point where the remaining material is insufficient to support the load it was designed to carry. Steel has to be fireproofed. Under intense heat, concrete can also lose some of its structural properties.¹⁰

How does timber's safety compare to other construction style?

Not only does timber have positive environmental impacts, but it has also proven to be structurally strong and meet the same performance and life safety standards as concrete and steel structures.¹¹



MAINTENANCE AND COST

Are there ongoing maintenance costs outside of a typical office building?

If the project team elects to leave the wood exposed and does not want it to gray, it will require ongoing maintenance to maintain the color.

Are there issues with termite protection, etc.?

With proper design, construction and maintenance it is no more an issue than any other type of building.

How does rental rate performance and tenant retention compare?

While this isn't something we've measured as of now, the thesis of T3 is to take the authenticity and creative energy of a brick-and-beam building and marry it with the leading amenities and technological features that the most exacting tenants demand in buildings.



References

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