



# Mass Timber: The Optimal Solution for Multi-Family High-Rise Construction

As urbanization and rising land costs drive greater densification, the need for efficient and sustainable construction methods become increasingly crucial. Mass timber is an innovative solution that can meet housing needs while addressing environmental concerns, and has the potential to revolutionize the way we build in urban cores.

## The Urban Densification Imperative

According to the United Nations, 68% of the world's population is expected to live in urban centers by 2050. These areas are constrained by limited available land, while increased demand has resulted in soaring land costs. Both add pressure to maximize buildable space, which requires efficient construction methods that minimize a building's footprint and allow vertical expansion. None of this is specific to mass timber. These constraints apply to high-rise projects across the board, and of course many successful non-mass timber high-rises continue to be completed. Which begs the questions: *Why mass timber, why now?*

## Mass Timber's Value Proposition

As multi-family developments proliferate, forward thinking developers see not only the need to provide sustainable, cost-conscious projects, but to hedge against future downturns caused by economic recessions, job losses, an over-saturated housing market, or other factors. What then is mass timber's value proposition? *Market differentiation.*

"We were struck by the aesthetic differentiation of mass timber; the exposed wood is a beautiful product. And once we learned more about mass timber's embodied carbon qualities compared to concrete and steel, we were sold. Our impact on the environment is a key piece to our development decisions and mass timber done right checks all the boxes for us."

Andrew Katz, Katz Development  
Developer of Return to Form  
12 stories / Denver, CO

Differentiation was also top of mind for the developer of Ascent, a 25-story mass timber housing project and currently the world's tallest mass timber building.

"The primary driver for us was aesthetics. We were looking for a differentiator, and in 2017 I saw the renderings for River Beech Tower [a study on a potential 80-story mass timber tower in Chicago]. It was a revelation to see that not only is it possible to build a high-rise out of wood, but you can also expose that structure inside, and the aesthetics are incomparable. It was this aha moment of, "Wow, can we do this?"

Tim Gokhman,  
New Land Enterprises  
Developer of Ascent  
25 stories / Milwaukee, WI

Photo: VRX Media Group



Ascent – Milwaukee, WI  
New Land Enterprises, Korb + Associates  
19 stories of mass timber over a 6-level podium



Heartwood – Seattle, WA / Skipstone Development, atelierjones LLC / *Eight stories of mass timber*

Differentiation may be a hedge against future downturns, but it's also increasingly necessary for projects looking to stand out in a crowded multi-family market. So, how does a developer capitalize on that distinction, especially when a mass timber project might cost more than a traditional high-rise project?

“We know that, from a materials standpoint, we're paying a premium for mass timber. But then you start taking offsetting factors into account. We saved money on the foundation, we saved money by using less gyp board in the building. Really, the big savings is the construction schedule. On the other hand, we also realize premiums in different ways. When I said aesthetics was a driver for market differentiation, that is of itself a premium. It allows you to stand apart in the market—in good times, and in bad times. Maybe there's cap rate compression on the exit. Maybe you do better with lease-up. Maybe you do better with retention. There will be a benefit. It may be difficult to know precisely how it will come, but that it will come is guaranteed.”

Tim Gokhman

### Positive Cost Impacts in Other Project Areas

Mass timber structural systems offer cost reductions in other project areas. On the surface, they can appear to carry a premium when compared to other materials. However, this is typically offset with savings related to a compressed construction schedule and other building features. For Return to Form, initial cost estimates for the structural system were \$54/SF for concrete and \$62/SF for mass timber. What followed was an optimization of the

timber volume through strategic layout decisions, and the alignment of unit programming with timber efficiencies in span and bearing locations. This, in combination with a 3-4 month construction schedule savings (and specifically the reduction in interest owed due to shorter construction carrying costs) led to a net \$150,000 savings for the mass timber option.

### Sustainability Can Be Cost Effective

While most developers recognize the importance of sustainable construction, the list of those who are willing to pay a premium for it is shorter. However, with mass timber, cost and sustainability don't have to be at odds.

“You can't ask people to compromise their expectations to 'do the right thing.' The performance and cost feasibility of mass timber have to be there to sell the other benefits such as sustainability, aesthetics, etc. Otherwise, you're just a niche with very limited opportunity for wide stream growth and implementation.”

Tim Gokhman

For 1510 Webster in Oakland, CA, a 19-story multi-family development and the first mass timber high-rise in the state, the combined drivers of cost, sustainability and functionality led to a unique solution of point-supported mass timber in Type IV-A construction. This construction type required all of the mass timber to be covered with multiple layers of gypsum board. Even though none of the mass timber will be exposed, the use of this system still netted a cost benefit when compared to traditional materials.

“Mass timber is a very sustainable material. It was important for us to be highly sustainable in everything that we were doing, but our real target was to create housing. Specifically housing for the missing middle, which is targeted at those earning 80%-120% of the average median income (AMI). Most housing is not designed to be affordable by that group of people. By going with mass timber panels and doing independent structural testing, we were able to move the column spacing from 10x10 ft to 12x15 ft. We eliminated 47 columns per floor. Every one of these components adds up to millions of dollars in savings on a high-rise project. If we were to build this project in concrete, it would cost \$100 million. We were able to go with a point-supported mass timber system and it saved us \$30 million.”

Andy Ball, oWOW  
Developer and architect of 1510 Webster  
19 stories / Oakland, CA

## The Future of Multi-Family High-Rise

Mass timber will not be a fit for every high-rise or every multi-family project. But for projects in the eight- to 18-story range, many developers and architects are optimistic about the positive changes that mass timber can bring to the future of urban development.

“With the timber exposure limit being increased to 100% up to 12 stories [using Type IV-B construction under the 2024 International Building Code], mass timber really starts to compete cost-wise in multi-family in the 8+ story range. I really think there is an opportunity for developers in cities that allow this.”

Andrew Katz

While many developers look to mass timber as a market differentiator, some see it as a practical tool for addressing housing needs, regardless of whether or not the timber is exposed.

“It’s incredibly sustainable, incredibly strong, and uses much less energy. It’s a wonderful product, so we look at it as a way to build buildings faster, for a lot less money in the future. I think as people get into the practical nature of this product, we’re going to see a lot more buildings designed and built out of mass timber.”

Andy Ball

There are now more than 200 mass timber high-rise buildings in design, and it’s just the beginning.

“In five to ten years, I see hundreds of eight- to 18-story mass timber buildings, many of them modeled after our eight-story Heartwood multi-family project, the first Type IV-C building in the U.S. I also see a few of the taller ones, like the Ascent tower, going through performance-based permits. I’m really excited for all of these mass timber buildings to help decarbonize our building industry. Our firm, atelierjones, can’t wait to be part of the next phase of mid-tall timber buildings in the U.S.”

Susan Jones, FAIA, atelierjones LLC  
Architect of Heartwood  
Eight stories / Seattle, WA

Photo: Flor Projects



1510 Webster – Oakland, CA  
oWOW / One story of steel over 16 stories of mass timber  
over a two-level concrete podium



Return to Form – Denver, CO  
Katz Development, tres birds workshop / *Nine stories of mass timber over a three-level podium*

With its sustainability, structural performance, and construction efficiency, mass timber is an ideal solution for many multi-family high-rise projects. For insights on how mass timber has created value on built U.S. properties to date—including a qualitative overview of the successes, challenges, and lessons learned from the developer/owner perspective—see WoodWorks’ series of mass timber [business case studies](#).

For information on mass timber projects and their design/construction teams throughout North America, visit the [WoodWorks Innovation Network \(WIN\)](#).

WoodWorks is available as a resource for developers and design/construction teams interested in pursuing mass timber multi-family or commercial projects in the U.S. Email [help@woodworks.org](mailto:help@woodworks.org).



11 E Lenox – Boston, MA  
Haycon, Monte French Design Studio / *Seven stories of mass timber*

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