



September 29-30, 2020 | Digital Event

AN EXCLUSIVE INTERVIEW WITH:



Jason Korb
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Managing Director
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The 25-story apartment tower, Ascent, will be the tallest mass timber hybrid structure in the world. How did you manage to push the boundaries to approval?

Jason: There are two reasons: luck and vigorous testing. In regards to luck, we had a commissioner with a forestry background who oversaw the building department. Having previously been acquainted with mass timber, he was very enthusiastic about this prospect. Additionally, one of Milwaukee Fire Department's Battalion Chiefs is a thought leader in mass timber fire safety of which definitely helped.

Secondly, there is also a specific path in the Wisconsin building code that permits performance based approvals. To this end, three separate fire tests were successfully performed to demonstrate that the mass timber structural components meet all code requirements for a building of this height. This proved to the AHJs that mass timber is a viable construction type for high rise applications.

Tim: Although we are fortunate to be doing this project in Milwaukee where people were interested in learning more about mass timber, the reality is that a mass timber building had not been built in the city before. The work done by our team made a huge difference in how we approached the city to get them onboard.

It is often assumed that all project teams will be onboard from the start. This is usually not the case. We had to collect a vast amount of experience, going around the world and presenting the project to organizations to build the best team in terms of connectors, fiber, fire codes, etc. The strength of our team helped to facilitate conversations with Milwaukee authorities.

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Navigating jurisdictional codes and working with inspectors to get innovative construction methodologies approved can be a challenge. How do you think you can work with agencies in order to facilitate the approval of mass timber?

Jason: We started working on approval within 60 days of examining the possibility of a high-rise mass timber building. We scheduled a private meeting with the Commissioner of the Department of Neighborhood Services, which is the AHJ in Milwaukee, to see if mass timber would even be considered as a construction typology in a high rise application.

With DNS leaderships conceptual approval, we were able to have more technical conversations with DNS staff and the Milwaukee Fire Department. MFD usually does not get involved in building permitting (The City has a full time Fire Engineer) but given the extraordinary nature of Ascent, MFD made an exception and became a critical partner to the project team.

A few weeks ago we received all necessary approvals to begin construction on the project. We now have a permit to construct footings and foundations, as well as all code variance approvals required to construct the project.

Tim: Testing is a binary response: it will either fail or pass. Hence there is not as much ambiguity. Three extensive tests needed to pass before approval.

What was the biggest learning curve you wish you had known at the start of this project?

Jason: How to minimize the amount of fiber in the assembly of mass timber to reduce costs.

The basic way to assemble a structural frame is very straightforward but the art is in the engineering. The initial designs of the building seemed perfect on paper but were not financially feasible due to the amount of glulam involved. We have found that in the Milwaukee market mass timber is a 25% premium in cost over concrete for a residential high-rise. We have also learned to minimize that premium by reducing the amount of fiber in glulam columns and beams.

To what extent is collaboration essential during testing?

Jason: Collaboration is critical on an external level and internally between project teams.

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Among project teams, there is an obvious collaboration between design and engineering teams. At an external level, a high level collaboration is essential with all levels of government: municipal level, state level and federal level. The federal government conducted the main fire test (which hadn't been done before) and published their findings from the test results. The state was very cooperative regarding specific data requirements and the City of Milwaukee government's extensive role is described above.

Coordination and collaboration required for mass timber buildings of this size is huge. In the last 6 months we have conducted over 30 coordination meetings with all MEP partners because of the level of coordination that goes into the assembly of mass timber. The coordination to build this is like nothing I have ever seen before. I have been working in architecture for 20 years and, due to prefabrication, have never been involved in a project with such a high level of collaboration.

However, technologies such as Virtual Design and Construction (VDC) to improve collaboration have cost an astonishing amount of time and cost the developer a lot of money. However, it will pay dividends during construction in terms of speed of assembly.

There are a number of reasons as to why mass timber is a viable option. What was the main driver for choosing mass timber for Ascent?

Tim: Initially it was a differentiator. A mass timber structure is unlike anything we have seen before. Exposed timber beams and columns provide an aesthetically unique architectural design.

The speed of assembly, labor utilization and sustainability all followed suit. The uniqueness of mass timber combined with these standpoints made a compelling case. We just needed to figure out how to engineer it.

How do you see mass timber evolving in the future?

Jason: Mass timber will become a widespread construction technology if it can be built at a low cost. Utilizing mass timber on buildings over 7 stories comes at a premium. However, it is really about assessing the costs after the production has scaled up. Right now we don't know the net premium because it is difficult to quantify the savings in terms of decreased foundations and less drywall, etc.

Tim: At the end of the day, everything is about costs. It has to be cost efficient in comparison to the next best material. When embarking on a mass timber building, one has to be very deliberate about what the objective is. We need more problem solvers in construction to identify the key objectives, drivers and objections. This isn't just in regards to mass timber, this is in development and problem solving in general. As with anything, you have to identify the problem you are trying to solve.

Jason Korb and Tim Gokhman will be discussing the business case of pursuing mass timber and selling it to the team at Advancing Mass Timber Construction 2020.

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