Walker Consulting Group

Summary of a Report prepared for the

Canadian Wood Council

Building Insurance Industry and Tall Wood Buildings

Executive Summary

March, 2015

Summary of Findings

In Canada, building codes for multi-storey structures are changing. Mid-rise wood buildings, up to 6-storeys in height, are already allowed under building codes in British Columbia, and about to be allowed in Ontario and Quebec. The New National Building Code of Canada, now completely allows the use of structural wood products in low-rise buildings including stairwells and elevator shafts. And taller wood structures, 8-10 storeys in height, are being planned for and demonstration structures are in development now.

In order for mid-rise and tall wood structures to gain traction on a mass scale, alignment of a number of other factors is necessary. Projects must make economic sense for developers, local code officials and fire officials must be apprised of and well informed about these structures, engineers and architects need to become familiar with the unique building methodologies involved. And insurers must be comfortable with the risks involved in order to be willing to underwrite these projects, both course of construction and post-construction.

The CWC invited the Walker Consulting Group to conduct research among North American insurers, to gain an understanding of the level of familiarity with, comfort with, concerns about, and ultimately their likely willingness to write insurance policies for these structures.

Most insurers, both brokers and carriers, are broadly familiar with the fact that building codes are changing across Canada to allow for mid-rise wood structures. In most of the country, only a small number of insurers we spoke to have been asked to put together price quotes for 6-storey projects thus far. In BC, it has become much more the norm. Most expect that they will start to see more pricing requests over the coming months.

There is a broadly held understanding in the insurance industry that wood structures are much more economically viable for 4, 6, and theoretically taller structures than concrete or steel. Even after accounting for insurance cost differences, it is widely recognized that there is a natural economic logic to building with wood where possible.

The most frequent reference point for insurers when talking about the dynamics associated with taller wood structures is the rapid rise of 3-4 storey wood buildings throughout Canada. Since the mid-90s, these buildings began replacing the traditional concrete block 3-4 storey structures in many cities and are now almost ubiquitous in that size building. Whether in terms of experience, pricing, and raw economics, many insurers

that were involved in the business then view the 6 storey and up wood structure as moving along the same curve as 4 storey did, as long as some key risk factors are managed. But some others are not so sure.

The insurance industry's experience with the 3-4 storey low-rise wood buildings has often been mixed. Many carriers have absorbed losses on these structures. During construction, fire is the most significant risk. And post-construction, water damage is the most significant risk. There is a consensus that both during and after construction, the insurance risk is greater for wood structures than for other materials, and that is reflected in higher relative cost. With taller wood structures, those concerns are amplified.

Where taller wood structures were seen as yielding greater risk than low and mid-rise has to do with the fact that the losses of more expensive buildings would be greater. Experience suggests that most of the time when a wood building suffers damage such as a fire or water damage, the building is a write-off. That is not necessarily the case with structures constructed from other materials. The greater the dollar value of the potential loss, the more risk involved.

Among interviewees, there was little to no in-depth understanding about the engineering and architectural differences between 4-storey and taller (6/8/10 storey) wood structures. And for most, those differences are not material to insurance considerations. Wood is defined as combustible construction, regardless of its structural properties.

Impressions of the most significant risks for insurers

It was evident during the interviews that the basket of risks associated with course of construction insurance were slightly but importantly different than those associated with post-construction insurance. Some of the risks are the same.

Course of Construction Risks

- Arson
- Hot works
- Temporary heating on the worksite
- Firefighting infrastructure limitations
    - Firefighting equipment on trucks can only get up to 4-storey structures from the outside
    - Proximity of fire hydrants to the building
    - Water pressure to fire hydrants

    - Paid vs. volunteer firefighting crews in the community
- Fires from scrap materials, and fires from woodpiles close to the structure
- Distance between wood buildings

Post-Construction risks

- Mold, from water leaks on higher floors to the rest of the building.
- Small footprint, tall building, "narrow chimney" for fires in tall wood structures.
- Sprinkler system failure, again leading to water damage throughout the building.
- Recessed top floors (more apt to burn more quickly).
- Lack of certainty about how well "fire-resistant" elements to buildings really work
- Earthquakes
- Residential vs. Commercial use of the building (residential is higher risk given the use of water and fire (like ovens)
- Firefighting insfrastructure limitations (see section above)

Impressions of the Opportunity for insurers

The prevailing belief is that course of construction insurance for tall wood buildings is a high risk-high reward business for insurers. For brokers, some see a real opportunity to be an early-adopter, to build a network of clients and to bundle risk in such a way that mitigates the perceived downside of these kinds of projects. For carriers, there is not as much appetite to be an early adopter. There are other kinds of projects where they believe money can be made, and as discussed above, the insurance track record on 4 storey wood structures is viewed as being a negative for 6+ storey.

At the same time, the BC experience is instructive. Based on our interviews with insurers in BC, there has been and continues to be enough willingness across the industry to get course of construction projects underwritten. Those projects have had to pay significantly more than what would be paid if the structure were concrete, but we have been told that in the grand scheme of total project costs, the economics do and still work.

For post-construction insurance, the business is also perceived as being higher risk/higher reward, but the relative risk differential is not as great as with a CoC projects. Insurance prices generally reflect those relative risk differences. Price differentials for the builder/developer/owner of a wood structure vs. a concrete structure are not as great as they are for course of construction insurance.

One of the ways insurers mitigate risk is by embedding warranties in insurance contracts. Warranties are provisions that insurers demand of developers/builders when they are agreeing to write insurance contracts. Typically warranties are more applicable in course of construction than post construction. And with mid rise and tall wood structures, warranties have increasingly become an expectation of builders from insurers. The most typical warranty expectations from insurers include:

- On-site tall fencing around the entire project
- On-site Surveillance. A watchman on duty 24/7 has become a standard expectation with many of these projects
- Infrared surveillance cameras
- Wood storage provisions (at a certain distance from the structure)
- Hot works management
- No burning of scrap onsite
- No temporary heat onsite

One of the most significant challenges we heard in these interviews was that warranties are becoming increasingly onerous and costly for builders to fulfill. Moreover, some warranty provisions that regularly get put into insurance contracts are actually impossible to achieve, and therefore provide a potentially that may result in frequent litigation associated with these projects. Bringing more rigor and continuity to some of these provisions is an area where some felt CWC might be able to play a helpful role for the building industry.

Expected Cost/Rates and Factors Influencing Rates

We were able to gather information about the going rate for, and the factors involved in, pricing for 6 storey and taller wood structures. The costing models that will be used as the primary reference point by insurers for mid-rise and tall wood structures draw largely upon the experience with 4 storey wood structures. We were informed that there is a long history of actuarial data that is a very good reference point to guide carriers as they price out projects. And those in BC that have been costing out these projects for a few years indicate that the 4 storey experience is the most useful reference point for 6+ storey.

We were informed that on each project, the price will be based on the value of the project overall, but can vary somewhat depending on factors including:

- Experience with the builder/contractor involved

- Dollar value of the project (higher value projects may get lower pricing per $100 in value)
- Geographic location of the project
- Concrete stairwells/roofs
- Fire resistant elements to the project (like no-burn applications)
- Proximity to other wood structures
- Acceptance of warranties in the insurance contract. Sometimes warranties (like how hot works will be dealt with) are built into the costing model, other times they are non-negotiable aspects of obtaining insurance at all. That is dependent on the broker/carrier involved.

One of the often cited possibilities for insurance for tall wood structures has to do with reinsurance. That is, if not enough traditional carriers are willing to participate in this business with taller wood structures, then reinsurers will be sought out. What we heard from stakeholders in these interviews about reinsurance was very clear: if reinsurers are necessary in order to get this business off the ground, the costs will go up for developers and builders significantly. Going to the reinsurance market can easily increase the price of course of construction insurance by 50% or more.

Conclusions

Our overall assessment is that there is likely an inexorable movement in the Canadian marketplace toward taller wood structures, where market conditions make the most sense (Vancouver, Calgary, Toronto). Based on these interviews, there was enough of a critical mass of interested brokers and insurers, as well as available capacity within the industry to take on a sizeable number of these projects.

But for every insurance representative that indicated there is a market and the shift is inevitable, there was another that expressed a more tepid “wait and see” approach. Based on this, and recognizing the market forces involved, it is likely a matter of whether this evolutionary process will take a longer time or a shorter time, and whether the costs and challenges involved for insurers and builders will be great, or can be kept at a reasonable level. To those ends, we have identified a number of potentially useful interventions and actions by stakeholders, including the CWC.

There is an opportunity for the CWC to proactively engage in educational efforts with developers and builders, to do the following:

- Outline the prevailing dynamics (expectations) associated with obtaining insurance for course of construction and post construction tall wood buildings;
- Explain how insurers approach these kinds of projects, including specific factors that make them more and less likely to be able to write insurance for them;
- Define how warranties work, as well as best practices in regard to implementation of warranties on site, and important issues to review in regard to the warranty language in insurance contracts;
- Develop a checklist of issues for consideration for developers and builders when scoping a potential tall wood project (such as proximity of fire hydrants, water pressure in hydrants, safety measures in roofing and specifically hot works in building).
- Develop a set of activities that developers and builders should consider to educate subcontractors about risks and considerations associated with building tall wood structures. This is a particularly critical step.
- Consider establishing training programs for developers/builders, perhaps establishing a certification system for companies and individuals involved in the tall wood building industry.

There is also a need for the CWC to proactively engage with the insurance industry on a number of fronts, including:

- Participate in forums for dialogue about best practices in architecture and design associated with these tall wood buildings, particularly measures that mitigate risks of fire (during construction) and water damage (post construction).
- Participate in workgroups with insurance industry stakeholders (like the Canadian Construction Documents Committee, which is a group organized by IBC) as they develop recommendations in areas like warranty language in insurance contracts.
- Highlight examples of best practice companies that build/manage tall wood structures, and the kinds of practices that they pursue
- In relations with the insurance industry, it will be more effective not to function like an advocate or lobbyist, more like an honest broker/expert in the field. Insurers we spoke to will be much more amenable to dialogue on the grounds of technical expertise than “advocacy”.
- Wherever possible, recognize and engage specifically with representatives of insurance carriers, who are the key decision makers.

There may be value in working closely with the architectural community (in Canada and internationally) as well as the insurance industry to engage a discussion about how post-

construction water risks in tall wood buildings can be minimized. Potential to consider commissioning research into this issue.

There is likely value in engaging with key municipal officials to inform them of some of the challenges and considerations associated with insuring these structures, and practices that they can advocate with builders and developers in their communities to ensure that best practices are followed (as lower insurance rates will likely follow if a municipality were to adopt some of these best practices as norms).