

# FRAMING THE DISCUSSION



*A rendering of Heartwood  
the Beach, a Fieldgate  
Homes and Hullmark  
wood-framed, mid-rise  
condo planned for 1884  
Queen St. E., Toronto.*

## RESEARCH AND NEW TECHNOLOGY ARE HELPING TO ADVANCE MID-RISE WOOD CONSTRUCTION

BY MARC HUMINILOWYCZ

On January 1, 2015, after years of advocacy efforts by Ontario's building industry, the Canadian Wood Council and numerous Ontario municipalities, the Ontario Building Code amendment to permit six-storey wood-frame construction was finally put in place.

The new code change was great news for Ontario on multiple fronts: Builders benefit from new construction opportunities and increased employment; municipalities are able to intensify neighbourhoods with under-utilized land on major avenues and corridors; residents are the beneficiaries of more affordable housing; and Canada's forestry industry is discovering an expanded market for its sustainably produced resource.

While the new regulations will be similar to those employed in British Columbia—which in 2009 became Canada's first province to adopt mid-rise wood-frame buildings—Ontario's code features more stringent safety requirements, including the use of non-combustible materials in areas such as stairwells and balcony sprinklers.

However, six-storey wood construction has been embraced in B.C. and in several countries around the world, where buildings of 10 storeys or higher are

commonplace—that despite six-storey wood construction encountering its fair share of opposition, mainly from the perspective of fire safety. Last September at OHBA's annual conference, Len Garis, Adjunct Professor and Fire Chief for the City of Surrey, B.C., helped quell those fears with a comprehensive presentation on fire safety of mid-rise wood-frame residential buildings.

Quoting statistics from the *Sprinkler Systems and Fire Outcomes in Multi-Level Residential Buildings* report that Garis co-authored with Dr. Joseph Clare in 2012, Garis' detailed seminar covered a massive amount of research on building fire safety, including a simulation modelling study from the National Research Council, a retrospective analysis of residential building fires in British Columbia and case studies from other jurisdictions with wood-frame buildings. Topics included fire simulations, fire incidents, sprinklers, injuries and loss of

life (firefighter and public), retrospective analyses, balcony fires, fires in buildings under construction, comparisons of fire incidence by construction type and other information extracted from 1,942 fire incidents that occurred in B.C. between October 2006 and October 2011.

"An overwhelmingly consistent theme emerges," Garis observed. "Although fire services have typically responded with concerns to changes in the building code (that allowed) this type of construction, the available information suggests that these structures will perform at least as well from a fire safety perspective as those already permitted."

Does construction type make a difference? Garis cited statistics that your likelihood of dying in a fire in a steel-frame building is the same as in a wood-frame building, assuming both have sprinklers and smoke alarms that are operational and compliant with the NFPA 13 standard.

Garis also noted that Ontario's code



bridge project will be, Reycraft believes in the many benefits of wood-frame construction. "Wood makes buildings work, offering a high return on investment," he says. "Builders are looking for budget-conscious options to offset the high cost of materials and land these days. Wood also offers the advantage of speedy construction." Reycraft explains that, compared to other building materials, wood can be easily brought to the site by truck, then staged and craned into place on site, without the need for large storage spaces.

David Moses, principal of Moses Structural Engineers in Toronto, has over 15 years of experience in wood and heavy timber construction and coordination. His company is currently involved in 10 mid-rise wood-frame projects in various stages of design, approval and construction.

While six-storey wood offers advantages to builders and municipalities over concrete, including time and cost efficiencies, Moses admits that it also has its challenges. "The code is very specific when it comes to the re-aligning of walls, especially shear walls," he explains. "This can affect the layout of spaces in residential units. For example, Toronto has mid-rise guidelines for its avenues, specifying stepping back on upper floors and stacking them so as not to obscure views. And the spacing of the grid is different on the main floor versus the upper floors."

But these are minor challenges, Moses says, adding that each project involves a learning curve. "But it's all manageable; you just need to sit down and address issues early in the design process," says Moses, who sees a bright future for six-storey wood, despite its slow acceptance and familiarity among municipal building officials and builders.

Among Ontario builders capitalizing on the changes in the building code, Homes by DeSantis has been one of the first out of the blocks. One of the developer's current projects is AquaBlu, a five-storey,

## WOOD WORKS!

**Mid-rise, wood-frame construction offers many benefits to builders, municipalities, residents and the environment:**

- **WOOD** is a sustainable, renewable and recyclable resource.
- **WOOD** is economical—it's lighter, more easily transportable and quicker to build than steel and concrete.
- **WOOD** is ideal for infill installations where a large crane is not possible.
- **WOOD** allows for more intensive land use—the ability to intensify neighbourhoods with under-utilized land on major avenues and corridors.
- **WOOD** offers smarter, more affordable housing—15% to 20% less than conventional construction.
- **WOOD** creates jobs and stimulates the economy.

124-unit wood-frame luxury condominium project in Grimsby. In addition to the economic and environmental benefits of wood, company president Gabriel DeSantis values its aesthetic flexibility. "Wood gives us versatility with the beauty aspects of construction," he says. "It allows us much more architectural creativity and a leap forward in interior design."

DeSantis says modern consumers are demanding smarter, more affordable spaces. "Wood allows us to meet the consumer demand by delivering a much better product at an affordable price," he says, adding that his AquaBlu project, supported with marketing materials promoting its wood-frame attributes, sold out in the first few hours of its launch.

Being an early adopter, DeSantis claims that his company's experience with this type of construction led to the development of methodology that paved the way for projects of greater heights. Having their share of early scrutiny from municipal building officials didn't hurt either. "The Town of Grimsby's Director of Building and Enforcement John Schonewille has been very supportive of our current project," DeSantis says.

Another company welcoming the

change with open arms is Barrie-based Pratt Homes. "Wood is what we know," says Pratt Homes owner Heljar Hansen. "It gives us the chance to develop infill sites that have not previously made sense financially. We can keep control of the projects ourselves and keep them within a framework that we're familiar with."

Not that the practice is all smooth sailing. "I guess the industry is experiencing some challenges related to wood shrinkage, but nothing that can't be solved," says Heljar, whose company is currently planning the Gallery in Barrie, a four-some of six-storey, wood-frame buildings.

"And mid-rise wood has been fought by interest groups. As such we are having some challenges due to a myth that wood will not perform good enough in a mid-rise application," Heljar concedes. "But with time and proper information to share with the public, this will change."

Almost one year after the change in Ontario's building code, the future of six-storey wood construction looks secure. Municipal building officials are getting up to speed. Engineers and builders are embracing new design techniques thanks to new software programs being developed.

Perhaps the only piece of the puzzle missing is on the marketing side with consumers who, besides being the beneficiaries of a more affordable housing option, may not be aware of the many other benefits. But it would appear that six-storey wood is just the most recent step in mid-rise construction.

How high can it go? The sky just may be the limit. **OHB**

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