

Moving beyond stick-built home construction—with “Hook & Build”

By Tony Kryzanowski I'm a born skeptic. When someone tells me they have invented a better, more affordable mousetrap, I always ask them to show me first. Then we'll talk. So when I heard about an Alberta architect who had invented a building construction model based on the Ikea furniture fastening system, I thought it was a bit early for St Patrick's Day and the traditional rubbing of the blarney stone. However, having now investigated the trademarked Hook & Build building system, my spider sense tells me that inventor Wolf Wilbert may have actually discovered what will usher in the next evolutionary phase of wood building construction in North America.

What makes me want to step out on a limb? The simplicity of the system, backed by the scientific evidence from tests conducted at both the University of Alberta and the University of BC, is what leads me to believe that on-site, stick-built construction will soon face some very stiff competition from the shell housing concept that Wilbert has developed. Furthermore, the structural strength of his concept and its versatility may be the competitive answer that the wood products industry has been looking for to really take a run at the nonresidential building construction market.

What's attractive about this system is that it delivers the building durability that is sometimes lacking in stick-built construction while making sturdier building construction much more affordable— without having to make the transition to a timber-built structure.

The foundation of this post and beam building system is an internationally patented fastening system called the “Wolfhook,” which is similar to the concept used to assemble and provide the strength inherent to Ikea furniture. To assemble a Hook & Build structure, the hammer is replaced with a ratchet wrench. So far, 12 homes and commercial buildings have been designed and constructed using the Hook & Build system and plans are in the works to roll out the next phase of this system's evolution through a major development in Western Canada.

It took 15 years for Wilbert to develop his original idea of a proven building system based on the Ikea concept. He says Hook & Build offers advantages on a number of fronts: • the system consumes about 30 per cent less wood; • it's 40 per cent cheaper than buildings constructed with solid timbers because it uses engineered wood products; • it generates no on site construction waste;

- the system offers the same versatility as conventional stick-built construction; and
- it has strength—enough strength, in fact, to withstand a tumble down a hill without breaking apart.

The steel fasteners are very similar in design, but vary in size depending on the weight of the component they are supporting. They not only connect the post and beam components, but also lock them into place, thus giving the structure its strength.

Two companies, Western Archrib in Edmonton and Structurlam Inc in Penticton, already have experience manufacturing both the glulam and fastener components.

To fully understand the Hook & Build system, picture the human body. It consists of a strong skeletal structure surrounded by an outer skin. That is essentially how this system works. The

fastened glulam beams are the skeleton and the outer skin can be either prefabricated components or stick-built.

The attraction for builders is that once the structure and outer shell are in place, they can offer building owners a wider variety of interior design concepts because there are no load bearing walls. I've heard from many experts that stick-built construction is losing its cost competitiveness because of the high cost of labour, as well as the amount of building material waste that is generated. That's where the Hook & Build system really excels.

Paul Knettig recently used the Hook & Build system to construct a three-storey, 4,500-square-foot home on a steep hillside overlooking the Pacific Ocean in an earthquake zone just outside Comox, BC. It took a framing crew, equipped with only ratchet wrenches, five days to erect the glulam structure and another four days to install the prefabricated envelope and roof.

The Hook & Build system also suits the do-it-yourselfer. It took Peter Johner and three friends two days to erect the glulam structure for a 1.5 storey, 2,500- square-foot, Swiss chalet-style home near Spruce Grove, Alberta. The envelope also consisted of prefabricated panels. This system was also used to construct a dome style home near Grande Prairie, Alberta. While the Hook & Build system is exciting, what worries me is that the forest industry will spend too much time fiddling while stick-built Rome burns, thus letting this opportunity pass by. The Hook & Build system has proven itself in wood structures, but the Wolfhook fastener works equally well with precast, fibreglass, solid timbers, plastics and metals.

I would strongly suggest that anyone involved in the forest products industry pick up Wilbert's new book, *Unwrapping the Hook & Build Building System*. It offers detailed illustrations and descriptions of how the system works. In my view, it may be the most important book concerning the future of the wood building construction industry in North America that you will read in the next 10 years.