

New Ottawa big box toy store snapped together like Lego blocks

Modular wood panel construction a speedy, cheap alternative to steel structure

BY MARIA COOK, OTTAWA CITIZEN JULY 16, 2013



Doug Jones is owner of Playvalue Toys, which is opening in a new location on David Manchester Road in the city's west end. The building is built with 156 snap-together wooden panels imported from Austria.

Photograph by: PAT McGRATH, THE OTTAWA CITIZEN

OTTAWA — Cross-laminated timber is a new construction material which arrives on site ready to snap together. So it's fitting that the first building in Ottawa to use the emerging technology is a store that carries Lego.

Playvalue Toys is set to open this week in an airy new 16,200-square-foot store and warehouse at 130 David Manchester Road in the west end of Ottawa. Among the thousands of toys, including play structures and trampolines, is a large selection of Lego, the plastic building system loved by kids.

Architect Rickson Outhet was reminded of it as he watched the big box store take shape. "Just like a toy building assembly, all of the walls were part of a pre-manufactured kit and were erected right out of the package which came from Austria," he says.

"It's the product of the future," adds Outhet. "It's green beyond anything we can do in Canada."

Cross-laminated timber or CLT is made of multiple layers of wood stacked crosswise and glued together. The panels are solid and can be used as structure for walls, floor and roof. “It’s like a butcher block,” says Outhet.

The environmental benefits come from using a renewable resource: young, fast-growing trees which are replaced. It takes less energy to make lumber than steel and concrete. “The whole building acts as a carbon sink,” says store owner Doug Jones.

Inside the store, creamy panels of spruce are exposed; a finished surface means additional material such as drywall is not needed.

“It’s spectacular,” says construction manager Brad Morley. “It’s not like anything else. The entire inside of the building is wood from floor to ceiling.”

CLT was developed in the mid-1990s in Austria as the result of a joint research project with the wood industry and academia. The prefabricated system of pre-cut components has been used in Europe for about 20 years and was introduced in Canada in 2010.

Playvalue is the third project in Ontario to use the product, after the Wayne Gretzky Sports Centre in Brantford, and picnic shelters in Brampton.

The store moved from leased space on Carling Avenue where it had been for 22 years. The building is being razed to make way for a car dealership.

Jones, who is a structural engineer by training, likes wood. He was intrigued by the system when he saw it a couple of years ago at a seminar by Wood WORKS!, a program of the Canadian Wood Council which promotes use of wood for non-residential projects.

He was impressed by the thermal and sound insulation and fire rating. Also cost and speed.

The material for the building — 156 panels — cost less than \$300,000 including shipping and duties. “It’s totally amazing.”

From order to delivery took eight weeks. The drawings were fed into a computer and in a day the panels were cut and ready. “The whole building went through their factory in one day,” says Jones.

About 200 cubic metres of panel arrived numbered and labelled from Austria to Montreal by ship on nine containers and then trucked to Ottawa. The panels are 28 feet high, four feet wide and five inches thick. They were packed in the order they would be used.

“I watched the unloading of the containers in this forest and I thought ‘Oh my God we just brought in loads and loads of spruce from the forests of Austria and planted them in the forests of Ontario,’” says Outhet.

“It’s something we could be shipping to the world, rather than buying from Austria.”

There are two Canadian producers, in British Columbia and Quebec, but the Austrian firm Binderholz was chosen because they had more experience and “the product was vastly superior in finish,” says Outhet.

The new store sits on four acres at Hwy. 7 and the Hazeldean overpass, near Stittsville.

On site, cranes tilted the wall panels into place. They are connected with tongue and groove joints plus wood bolts.

“The panels tilt it up in sequential manner much the way the one would construct a Lego castle,” says Outhet.

Lego also inspired some of the design. The window mullions above the door make a brick joint pattern which matches the proportions of Lego. A simple red canopy over the entrance looks like a single giant block pulled out from the wall.

The biggest challenge was training the construction crew and bracing the panels. the final panel “dropped in like butter,” says Outhet. “It was amazing. We had one guy with a 10-pound sledgehammer at the top to give it a final tap. Everything fit.”

The exterior is clad in white metal because wood can’t be exposed in our climate.

A large warehouse and loading facility was needed because a big chunk of the store’s business is web-based and is expected to grow in future. Product is delivered daily throughout North America.

Construction started in January but there were delays because the City of Ottawa wouldn’t accept European standards for fire and seismic capability.

“This is brand new for this city,” says Outhet. In the end, the city asked a structural engineering firm to review the submission and it was approved.

Across Canada, close to 20 buildings have been built using CLT. The Laurentian School of Architecture in Sudbury is being designed with it, as is the Wood Innovation and Design Centre in Prince George B.C. It will be one of North America’s tallest wood buildings at nine storeys.

The Ontario office of Wood WORKS! plans to use Playvalue as a case study.

“It’s a different way of looking at wood construction,” says Ontario Wood WORKS! technical director Michelle Maybee.

“Typically when people think of wood-frame construction, they think of two by fours,” she says. “This is a slab product. It’s more similar to concrete construction than traditional light-weight frame. It opens up the types of applications.”

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