

NEW CENTRAL LIBRARY

Encapsulation is complete, construction has started, and the LEGO® model is ready for viewing at the current Central Library. Teams are making the interior of the New Central Library as comfortable and sustainable as it is spectacular. Read on!

THE NCL AS YOU'VE NEVER SEEN IT BEFORE!

100,000+ PIECES | 1+ YEAR TO ASSEMBLE



ENCAPSULATION DONE!

It's not every day that you build a tunnel around an underground LRT that curves up a slope to the surface – and then use that tunnel as the foundation for a landmark library!

East Village Master Developer Calgary Municipal Land Corporation couldn't have picked a better team of structural engineers for the job. Entuitive, a Calgary-based firm, already had experience in a job that had many parallels to the NCL encapsulation – a New York City project called Manhattan West in which 13 commuter train tracks, which carry more than a million travelers a day, were covered to create a foundation for four enormous towers.

"We applied a lot of the lessons we learned in New York to the NCL project," says Brock Schroeder, managing director of Entuitive.

The encapsulation is also the foundation for the library. That saves money so the library can enhance library services.

*Brock Schroeder,
Managing Director, Entuitive*

The NCL project was smaller, but still on an impressive scale – see the facts and figures that accompany this article. "There were challenges," Schroeder says. "But we wanted to combine the LRT encapsulation with the foundation in order save money. That way, the library has more money to enhance library services."

The encapsulation project was underway before the NCL building design was complete, so the tunnel helped inform the design. For instance, the LRT track had a quirky geometry – it didn't rise in a continuous grade – which meant that the shape of the building had to be tweaked to fit. The contact wire above the train, which provides power, had to be lowered so that the tunnel didn't project into the library too far: it was decided that the wires would go into support beams.

You can watch the encapsulation process on an animation at calgarymlc.ca/NCL. You'll see the piles go in, the two walls go up, and the precast roof go on – which happened in a record two evenings so as not to disrupt service.

"There are fewer and fewer open spaces for building in cities," says Schroeder. "You'll see more creative solutions like this one in many cities in the future."

The NCL encapsulation was unprecedented in Calgary – it's the first time a working LRT line has been incorporated into a building, and definitely the first time that an encapsulation has become the foundation for a building! It's a success story we like to celebrate. Here are a few choice facts about the work to marvel at while construction of the NCL goes on.

150 metres

Length of LRT encapsulation



99%

of work was completed while the CTrain was in full service

18 months
of construction

40,000
labour hours

Depths of pilings driven into ground to support walls & roof

up to **32 metres**

2,500
cubic metres
of concrete

Amount of rebar used to support pilings & roof panels

420
metric tonnes

53

Number of rooftop panels

40 hrs
straight to install roof panels

9,150 metres of cable installed

CONSTRUCTION BEGINS!

Now that the encapsulation is complete, work on the New Central Library itself has begun, and the NCL will soon go vertical. There are about 750 days of construction to be done on the building, Calgary's most ambitious cultural project since the Olympic Games in 1988. Rob Adamson, a principal at DIALOG – the Calgary architects who've teamed up with Snøhetta to design and realize the NCL – says that phase 1 is the skeleton of the building. "We call it the 'super structure' phase," he says. "Calgarians will see steel and concrete defining the four levels of the library, and steel trusses will span from the main floor to the rooftop."

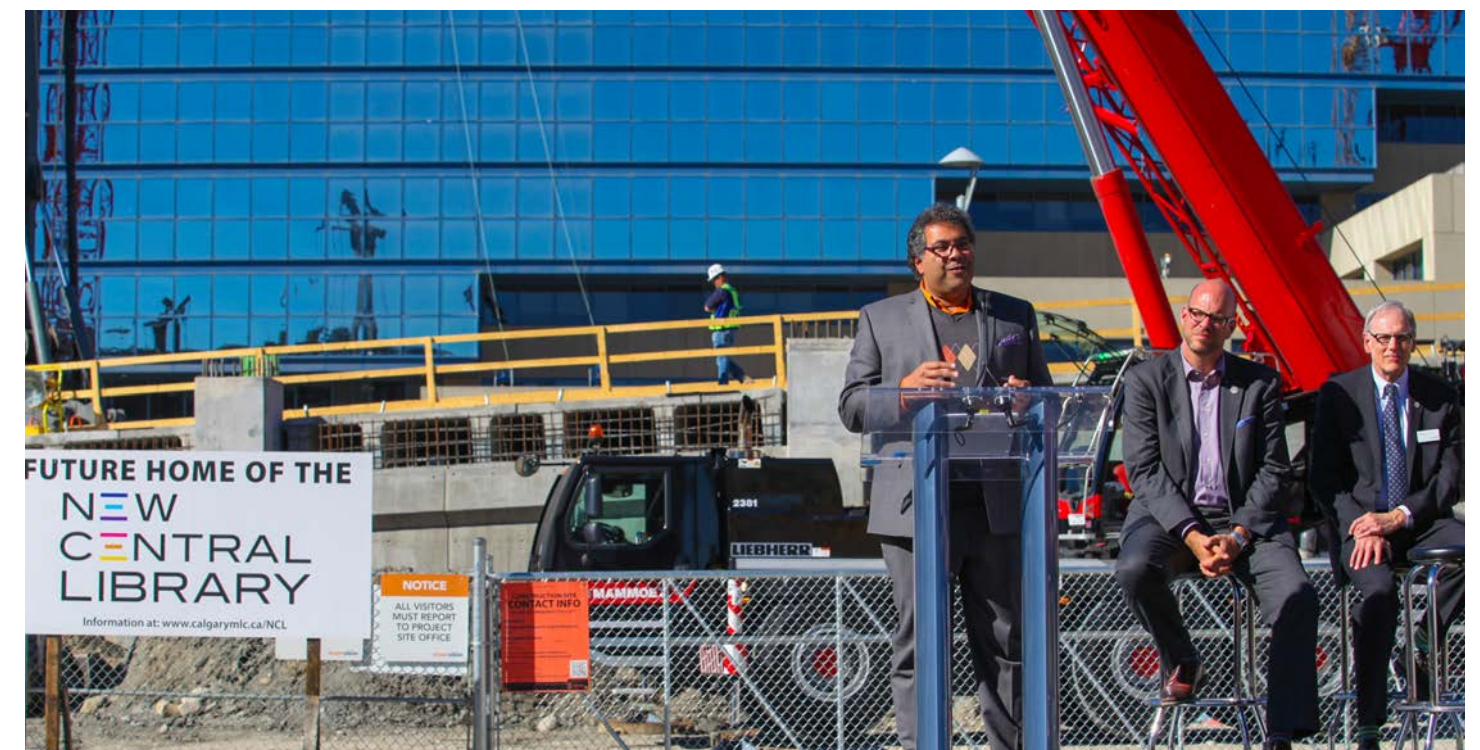
Phase 2 is the curtain wall, the outer skin of the library. This intricate skin is being delivered by Ferguson and Glass in Calgary – the same people who did the curtain wall work on the Children's Hospital. Once that's done, Phase 3 moves inside to work on the mechanical electrical services. And

after that, floors are installed and partitions will define the inner spaces of the library, from the 340-seat theatre to the children's area on the second floor, teen spaces on the third floor, and the top floor Living Room and Great Reading Room.

The final phase is all about fit and finishing. "This is the intricate and time-consuming work," says Adamson, "because it will give the spaces their texture, colour, and atmosphere. All the design components, furniture, and details come at this phase." It's in the partitions and fit and finish that Calgarians will see many of their wishes for the library come to life.

The Calgary Public Library has set its sights on creating the "best public library in the world," according to Janet Hutchinson, the library's board chair – a place that will be as relevant in the lives of all Calgarians as it is spectacular to behold. In the next two years, we'll watch it grow.

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BRICK BY BRICK

The New Central Library is a stunning building from every perspective – architecturally, environmentally, functionally. But totally cool when made out of LEGO.

In real life, the NCL will be four stories tall and enclose some 236,000 square feet. In the world of LEGO aficionado and builder Ben Stephenson, the NCL is 40 inches wide by 90 inches long and almost three feet in height. It's to scale. And it looks so much like the real deal that even the experts say it's uncanny.

Library lovers who just can't wait for Calgary's New Central Library to open in 2018 can get up close and three-dimensional with the stunning new building right now.

Built entirely of LEGO (right down to the furniture and landscaping), the model is a marvel of precision engineering and LEGO know-how.

Not only is the curved exterior of the iconic four-storey building accurately recreated in interlocking brick, but the



Rob McMorris Photography

site itself – a wedge shape bisected by an LRT line and the 8th Ave. pedestrian corridor – is immediately recognizable. The streetscape of 3rd St. SE merges with the library's terraced landscaping; a small amphitheatre follows the rise of the LRT track; there are even two CTrains occupying the parallel tracks that pass under the building. And every last inch of it is made out of LEGO.

Small wonder it took Stephenson more than a year to assemble.

Working from conceptual art mock-ups and floor plans provided by the Calgary Public Library Foundation, Stephenson – who is a senior instructor in the University of Calgary's Department of Computer Science by day and a member of the Southern Alberta LEGO Users Group by night – set to work planning the massive project. No stranger to large commissioned LEGO builds, Stephenson had previously constructed, among other things, a seven foot tall oil rig and 20 inch by 100 inch dinosaur. But in terms of total number of LEGO bricks used – a whopping 100,000 pieces – the NCL model is by far the largest project he has tackled.

Stephenson tapped into three sources to round up all the LEGO supplies he needed (like, for example, nearly 800 window panes) – the bricks and mortar LEGO Store at Chinook Centre, the LEGO online store and BrickLink, which is the eBay of all things LEGO.

With the exception of custom-printed stickers that replicate the unique honeycomb appearance of the library's windows (whose angles would have been impossible to represent in LEGO), Stephenson used only standard garden-variety LEGO bricks to build the model library. No custom bricks were used and no bricks were cut to make them fit better.

After constructing the entire exterior of the library – to make sure that the outer appearance looked the way it should – Stephenson then pulled off the exterior shell and painstakingly populated all four floors of the building's interior, again in nothing but LEGO. The library's top-floor café is visible through the windows, as is its soaring staircase. "Because some of the glass is clear, we wanted the inside of the library to look busy, the way it will be when it is being used," explains

Stephenson. "You can look through the windows and see tables and chairs and bookshelves, as well as people sitting there and walking around the building."

A standard LEGO set allows only six or seven bricks between floors in a structure, but Stephenson allowed a space of 12 bricks between floors, in order to make the scale of the interior jive with that of the imposing exterior. Even so, the painstaking construction of the interior was, at times, a bit tight.

Stephenson claims, though, that the really nerve-wracking part was carrying the largest segment of the completed model out of his basement. "If I'd have dropped that, it would have been a colossal disaster," he laughs. Putting a big Plexiglass cover over the library – after it had been reassembled in his garage – was the second-most nerve-wracking part of the process. Because no glue was used, loading the completed model into a trailer for the drive

You can look through the windows and see tables and chairs and bookshelves, as well as people sitting, working or walking around the building.



Rob McMorris Photography

across town to the current Central Library was also cause for white knuckles and nibbled fingernails.

Head to the Calgary Central Library to see the completed project and for a sneak peek at the ins and outs of the New Central Library, LEGO-style.

BRICKS & BUCKS

The idea that a LEGO library model might be a good fundraising device for Calgary libraries didn't, um, click right away. Paul McIntyre-Royston, President and CEO of the Calgary Public Library Foundation, said that at the beginning, building the model "just seemed like fun – playful and engaging." But as the team, ahem, put the pieces together, the idea of using the model to fund an IdeaLab emerged – a space for people to make and invent things, to try 3D printers or to dig into big data. A Kickstarter program launched in early October, and for donations from \$1 to \$8,000, Calgarians will receive a LEGO Nenshi with his Best Mayor in the World Trophy, a kit to make a miniature LEGO library of their own, or even, for big spenders, a private dinner with the architects from Snøhetta, who designed the building. If that goes well, more phases will follow. It's a great cause!

Visit libraryidealab.ca to become a backer today.

INNOVATION IN, INSPIRATION OUT

The New Central Library is getting the lion's share of the spotlight these days, but from Fish Creek to Nose Hill, the other 18 community libraries of the Calgary Library System are busy innovating. Sometimes it's plans for the NCL that inspire change in other libraries, and sometimes it's the other way around.

Physical changes and renovations are happening all over the Library system, and innovative design for the New Central Library is already benefitting community libraries. Example? LED lights are being added to shelves, which gives libraries a warmer, better-lit overall feeling. "We're highlighting the contents of the library, and the whole place kind of glows," says Calgary Public Library CEO Bill Ptacek.

Suburban libraries are developing early literacy programs that will come downtown – critical work in a city where 85,000 citizens are under the age of five. Ptacek says that many reading habits and attitudes toward information are formed even before children get to school, which makes libraries a great place for kids to start down the road of lifelong literacy. Studies show that when they do, kids have more success and better results in school and in life, with more revenue-earning power and multiple other benefits.

Fish Creek and Village Square libraries are making early literacy child's play – literally. They've started by working with the team that created the highly successful interactive children's exhibits at the TELUS Spark Science Centre. "We're not making libraries into playgrounds," says Ptacek, "rather we're incorporating and acknowledging play as part of learning about reading." And Ptacek promises a major playful attraction for the current Central Library before the end of the year. "I can't tell you about it yet," he says, rather playfully. "But we think it will motivate families to come downtown to experience it."



Illustration: MIR.



Illustration: MIR.

We're going to surprise the community with something spectacular before the end of the year – something that we think will motivate families to come downtown to experience it. I can't tell you yet. But everyone's going to love it.

Bill Ptacek, CEO, Calgary Public Library

Grownups, too, are getting information in more playful – and accessible – formats. Adult-themed collections of books on popular grownup topics – cooking, gardening, renovating – are being gathered together and offered, bookstore-style, on the ground floor of libraries. "It's a change from looking for things squirreled away in the Dewey Decimals," says Ptacek. "It's a different style of marketing and organizing." The library is also experimenting with an innovation centre in which large amounts of data – the kind of information gathered by municipalities and governments – would be made available to anyone curious enough to decipher it. Calgarians could dig into housing starts, neighbourhood crime, climate change or hundreds of other subjects. "There's been a lot of talk about encouraging transparency and making data accessible," Ptacek says. "We think it's important to make that real."

THE HOMEY LIBRARY

While the encapsulation of the CTrain line is finished and construction on the library itself just beginning, the interior design of the New Central Library is already humming along.

The Calgary Public Library team – under the guidance of lead architect Snøhetta's design experts – is becoming skilled at envisioning the future of the library space. Not just a near future, but also a future, a hundred years from now, that's difficult to grasp.

"It's a bit like buying furniture for your house before the builder has put a spade in the ground," says Ellen Humphrey, deputy CEO for the Calgary Public Library. "Flexibility and versatility are the watchwords."

The team is choosing everything from water fountains to paper dispensers. They're picking equipment that defines spaces where people will make objects from robots to paper airplanes, and they're understanding where to store the data in rooms designed around laptops, Chromebooks, and desktop technology.

They're buying furniture and fixtures for everyone from babies to seniors – teeny tiny tables and chairs; chairs big enough for a parent and a child to snuggle into; chairs that are easy to sink into and get off. Oh, and a small performance stage for teenagers, but a moveable one, because you never know where the show might go on.

Then there's the Great Reading Room on the top floor, where the furniture will be a nod to traditional library design. Ellen Humphrey is fond of imagining this room; as a young student in Paris, she daily staked out a spot at the long tables in the spectacular Oval Reading Room of the National Library of France. "The Great Reading Room is very satisfying for librarians," she says. "But our ideas for it aren't nostalgic. They're about being faithful to the values that have guided public libraries from the beginning – which have to do with quiet study, contemplation, and reflection. No matter how everything else changes, there should always be room for that."

Our job right now is a bit like buying furniture for your house before the builder has put a spade in the ground. Flexibility and versatility are the watchwords. *Ellen Humphrey, Deputy CEO, Calgary Public Library.*



Illustration: MIR.

NEW CENTRAL LIBRARY FOREVER!

THE NEW CENTRAL LIBRARY WANTS TO BE AS SUSTAINABLE AS IT IS BEAUTIFUL AND FUNCTIONAL.

The NCL project team, headed by East Village Master Developer CMLC, is pursuing LEED Gold rating. LEED, which stands for Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices. It's based on a wide range of tough, specific criteria in the use of energy, water, materials, site, indoor environment, innovation, and regional considerations. Here are just a few of the ways we're meeting them:



1.

The NCL is built within a dense, urban setting close to transit. That's important, because it encourages use of the CTrain.

2. The project optimizes comfort for library visitors through radiant heating and cooling – and the environmentally-smart District Energy plant in EV provides our heating needs.
3. The irrigation system for toilets doesn't operate with drinking water, but from a cistern system instead – and we'll have low-flow plumbing fixtures throughout the library. We're saving drinking water for drinking!
4. Once the NCL opens, even the janitorial program will have a green focus, partly by using kinder, gentler – but still effective – cleaning products. And dedicated recycling handling areas and storage have been incorporated into the floor plans.



5.

Our windows bring in lots of light and their triple panes save energy. The carpets, paint, glues and other interior finishes are made of low VOC (Volatile Organic Compound) materials. That means they're better for you.

Illustration: MIR.



For more information, contact Calgary Municipal Land Corporation at 403.718.0300 or calgarymlc.ca/NCL

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