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# ReNew

## CANADA

THE INFRASTRUCTURE MAGAZINE

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ReNew  
**TOP 100**  
CANADA'S BIGGEST  
INFRASTRUCTURE PROJECTS

# THE COLOUR OF MONEY

## CANADA BETS BIG ON INFRASTRUCTURE

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# WESTERN HOSPITALITY

The expansion of Calgary's BMO Centre drew its inspiration from Alberta's pioneering spirit by Mark Cardwell

**W**HEN IT COMES to end-of-project team celebrations, Adam Paulitsch, principal architect at global design firm Populous, says convention centre hand overs usually pale in comparison to the launch of world-class sports and entertainment venues like the Sphere in Las Vegas that are the principal focus of his firm's work.

"Those projects usually end with an opening day or a grand opening where teams of people and even their families can go and enjoy the finished project," said Paulitsch, design director for Populous' convention and exhibition centre practice.

"Convention centres are a big part of our business, but they don't usually end that way. Normally we just turn over the keys after five years of work and, that's it, you move on."

But that wasn't the case at the official opening of the expansion of Calgary's BMO Centre in Stampede Park in last June.

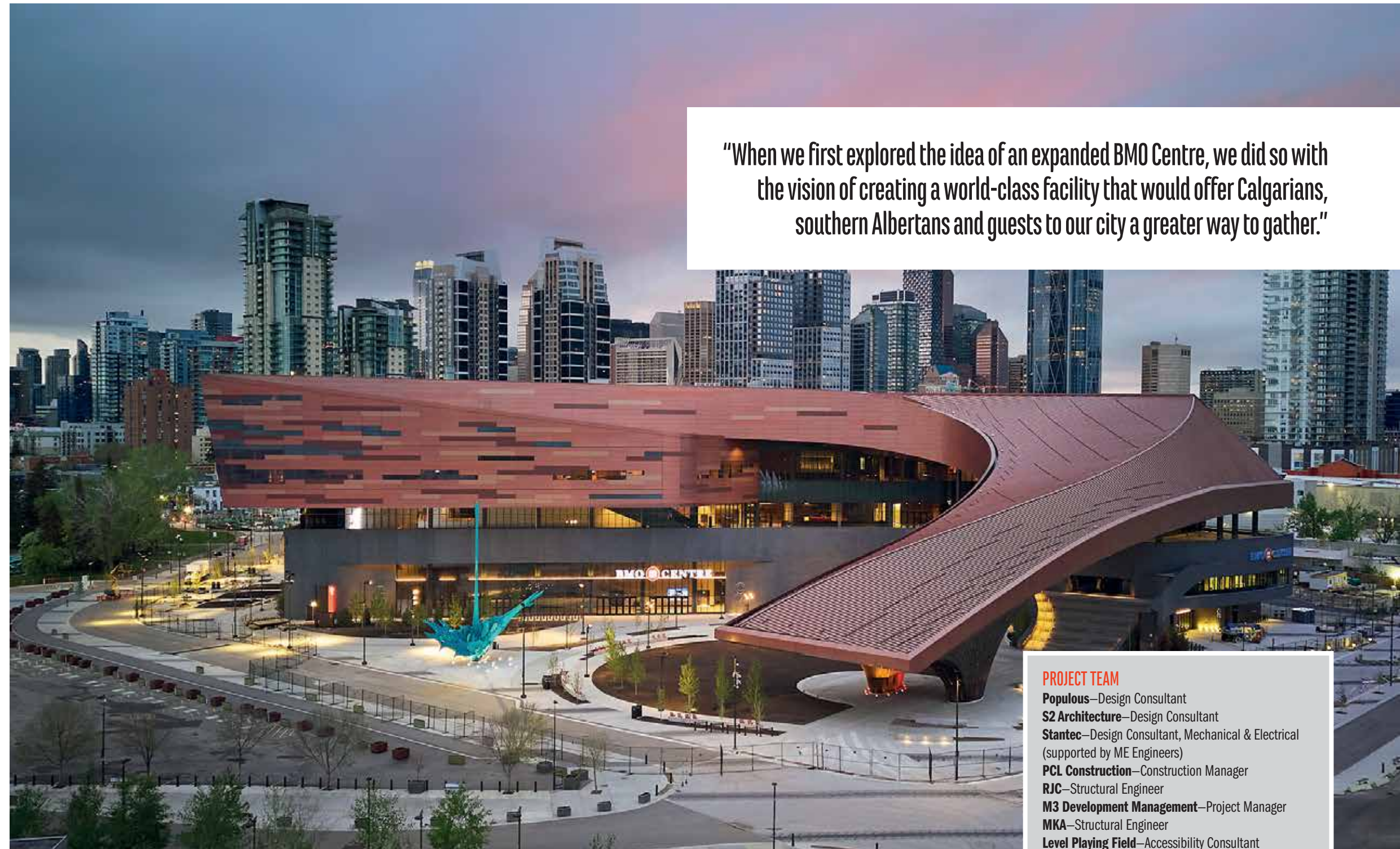
After decades of planning and four years of construction at a cost of \$500 million, the new three-story facility was inaugurated with live music, fireworks, a ribbon-cutting ceremony and a reception for political and business leaders from across Alberta and many project team members, including architects, managers, interior designers and urban planners.

"It was 'Wow!'" said Paulitsch. "But it was no surprise. We were working all these years with the people from the Stampede who are the biggest and best event planners in the world."

There were many good reasons for all the hoopla. One was the sheer size of the project. Delivered on time and on budget by more than 80 consultants and contractors and more than 5,000 workers who put in more than two million construction hours, the expansion added 565,000 square feet and two floors to the original BMO Centre.

It is now the largest convention centre in Western Canada with over 1 million square feet of space that can accommodate up to 33,000 people in more than 100,000 square feet of new exhibition space, three dozen new meeting rooms and two ballrooms that are now the biggest in the province.

Then there's the new building's stunning design. Inspired by Calgary's skyline, Western Canada's pioneering spirit and the traditions of the world-famous Calgary Stampede—a century-old annual rodeo and festival that attracts more than a million visitors over 10 days in July and bills itself as 'The Greatest Outdoor Show on Earth'—it features floor-to-ceiling windows that offer stunning views of the Rocky Mountains, the city's downtown and the surrounding Stampede Park, which is home to the Stampede and Calgary's iconic Scotiabank Saddledome arena, home to the NHL's Calgary Flames.



"When we first explored the idea of an expanded BMO Centre, we did so with the vision of creating a world-class facility that would offer Calgarians, southern Albertans and guests to our city a greater way to gather."

## PROJECT TEAM

**Populous**—Design Consultant  
**S2 Architecture**—Design Consultant  
**Stantec**—Design Consultant, Mechanical & Electrical (supported by ME Engineers)  
**PCL Construction**—Construction Manager  
**RJC**—Structural Engineer  
**M3 Development Management**—Project Manager  
**MKA**—Structural Engineer  
**Level Playing Field**—Accessibility Consultant  
**O2 Planning & Design**—Landscape Architect  
**Urban Systems**—Civil Engineer

5,000+ workers put in more than two million construction hours to build the expansion, which added 565,000 square feet and two floors to the original BMO Centre.

TOM HARRIS PHOTOGRAPHY

Other features include The Exchange—a central gathering place with an 80-foot indoor fireplace that is believed to be the largest in Canada—and several Stampede design elements, including vintage posters inlaid in concrete, a massive Neon Cowboy and a bookable gathering space called the Brand Room that has charred wood panelling, cowboy boot-like leather covered doors and a private 11,000-square-foot outdoor patio.

"Every feature in the new building was thought out in detail with several deep themes that both evoke and are engrained in Western culture and human civilization," said Paulitsch, who has lived in Calgary since 2018—first as Populous' point man on the BMO Centre project, now as a scout for similar project opportunities in the Canadian market.

"For example, the 80-foot fireplace evokes the genesis of pioneer life and represents the transfer of knowledge from people sitting around them, talking," he said. "I love to see people sitting around doing the same thing in the new centre."

Paulitsch said the same approach permeated every aspect of the expansion design. "Cowboy hats, wagon wheels and horse statues are not bad. But the Stampede was looking at the future—from a strictly western and agricultural event to a move modern vibe that embrace its past and future," he said.



Mark Cardwell is a freelance writer based in the Quebec City region.



"The very look of the building embraces both the history and future of Stampede," added Paulitsch, who worked with project team colleagues from Populous, Stantec and S2 to bring those design elements to life. "It's made in a circular, swirling, swooping fashion, like a lasso that's being spun in the air by a cowboy before he ropes a steer."

"Then it tapers down (in a 170-foot curved canopy) like a sliding Honda Knot loop that gets it to the

Stampede Park, it was designed to host tradeshow on a single level.

Despite the addition of new ballrooms, exhibit halls and meeting rooms in both 2000 and 2009, more space and upgrades were needed if Calgary hoped to compete for convention business on a regional, national and international scale.

"For well over 100 years Stampede Park has been a gathering place for our community as well as for visitors from around the world," said Joel Cowley, CEO of the Calgary



The column-free Champions Ballroom, inspired by light filtering through old barn wood, hosts 3,000 seated or 5,000 standing. The vast outdoor plaza situated on the southern side of the BMO Centre spans nearly 100,000 square feet and boasts art installations with nods to the Calgary Stampede's history.



ground (and a 100,000-square-foot outdoor plaza). There it looks almost like the hoof of a horse digging in, like it was running in a chuck wagon race."

"Industry-wise, it's raised the bar and set a new standard in convention centre buildings."

That was the goal when talks began decades ago in Calgary business and development circles on the need to transform the BMO Centre into a larger, world-class facility and architectural landmark that could attract and accommodate large-scale events to the city.

First opened in 1981 as the Roundup Centre in

Stampede. "When we first explored the idea of an expanded BMO Centre, we did so with the vision of creating a world-class facility that would offer Calgarians, southern Albertans and guests to our city a greater way to gather."

In 2018 that task fell to the Calgary Municipal Land Corporation (CMLC). Created by the city in 2007 to kick-start Calgary's urban renewal by revitalizing the Rivers District—a 504-acre area in the city's downtown east end that includes the East Village and Calgary's emerging Culture + Entertainment Dis-

trict—the non-profit organization had just finished managing the five-year, \$240-million construction of Calgary's Central Library, a stunning urban landmark in the East Village.

Partnering with the Calgary Stampede and the City of Calgary, the CMLC began the BMO Centre vertical build project with an eye to enhancing guest experience in Stampede Park and aligning it with other major strategic initiatives in its Rivers District Master Plan, including the redevelopment of the Stampede Trail, the extension of LRT stations and the development of both a future arena and four million square feet of mixed-use residential development.

CMLC

"We worked closely with the Stampede because they are the stewards of the Rivers District," said Kelly Coles, CMLC's vice president, building and infrastructure since 2019. "We were driven by costs and a hard deadline of June 2024 because a deal the Stampede had signed with Rotary International a year to host their international congress with 30,000 people in the summer of 2025 stipulated the construction had to be completed a year before. If not, we'd be on the hook for liquidated damages."

Once the winning design team was selected from an international competition that garnered some 30 submissions, preparatory work began on project, which was funded in equal parts by the federal, provincial and municipal governments.

Two buildings attached to the original BMO Centre—the Dufferin Theatre and the Corral, where the Flames first played—were demolished, as was Hall A, the biggest trade show hall in the original centre.

Another hall—dubbed Hall F—was also built so that the Stampede could continue doing business during construction. A data centre was also built to feed 42 buildings.

That telecom enabling work proved to be a nightmare due to the damage caused by Calgary flood of 2013 that inundated both the city's zoo and the Stampede grounds, which are located on a bend in the Elbow River that runs through the city.

"The entire underground infrastructure was affected," said Coles. "Duct banks were filled with gunk that had hardened over the years. There were tens of thousands of IT and cable lines feeding dozens of buildings from one spot in the demolition area. It was a horrendous, tangled mess of wires that no one knew where they went to or whether they were dead or alive."

"We had to build a new comms hut with no blackout time," said Coles. "It was wildly frustrating and challenging and took a very specialized group of consultants to deal with it."

Just as construction and piling work got underway the project was hit with another broadside in the form of the COVID public health crisis.

In addition to cost increases and work slowdowns, the constraints of the pandemic also necessitated a largely remote design process. Project developers also had to develop operational schedules around the Stampede's schedule.

"We couldn't use heavy construction equipment during those events," said Coles. "COVID ended those events, so that enabled us to go full speed on pilings and other heavy work. And we were lucky because it was not yet an enclosed structure so there were no building trades on site during the pandemic."

When work finally did get underway on the actual expansion work, several innovative solutions to the project's structurally complex challenges were put into practice.

In addition to vibration control and the need to ensure a comfortable experience for thousands of visitors at a variety of events—from large-scale exhibitions to small meetings to parties—one of the main challenges with the BMO Centre expansion arose from both the need and

importance to create a structurally sound building that was not only functionally useful and aesthetically striking but also allowed a maximum of free movement within the space to enhance visitor experience.

"When we schemed the building we chose to stack uses of space," said Geoff Kallweit, RJC Engineer's project engineer for the expansion project. "And we tried to minimize the number of columns in the exhibition hall in order to have the most open space possible."

RJC was given the task of developing the structural systems required to create the building in physical space, along with Magnusson Klemencic Associates.

Kallweit said the fact that the exhibition hall is on the main floor in the new BMO Centre—which is not the conventional way conference centres are built—only added to the engineering challenge.

"Usually, they're up higher and are connected to the main floor with escalators," he said. "Having it on the main floor, without columns to hold up all the weight of the building above, meant we needed to span long distances. The structural demand is much higher."

A specialist in pedestrian and vehicular bridges like the Columbia Icefield Skywalk, a glass walkway 280 metres above Alberta's Sunwapta Valley that he helped design and build, Kallweit said a grid of deep structural steel trusses made by Walters Steel in Hamilton, Ont., each spanning 24 metres—the length of a swimming pool—were designed to fill in between columns.

The floor structure, which would normally be filled in with rolled steel floor beams, was formed one-story—or five metres—deep.

"Those trusses support floors above that have other uses, like dancing," he said. "We spent a lot of time and did a lot of analysis and computer modelling on how and where vibrations occur and how they are transmitted, amplified and affect other areas of the building."

The analysis determined the size, strength and stiffness of the I-shaped steel columns, some of which have four-inch thick flangers and one-metre sections that weight as much as a small car.

In regards to the curving roof and the canopy that curls to the ground—a structural element that he called "very free form"—Kallweit said the challenge was to use pieces of steel that were cut and formed in straight segments and then connected together.

In all, Kallweit said the total amount of steel used in the BMO Centre expansion weighs one-and-a-half times more than the Eiffel Tower.

According to CMLC, the new building is already a success, with more than 500 conventions and events booked into the space since its opening, generating an annual economic impact on Calgary of some \$100 million and creating thousands of jobs.

For Paulitsch, who walks his dog almost daily by the new BMO Centre and sometimes takes public tours in-cognito, seeing and hearing the community's embrace of the new convention centre is another novel bonus.

"Living here full time is incredibly fulfilling and the feedback is incredible," he said. "People love the building. And I hear people saying that they now realize it isn't a finish line, it's a starting line." ♣