



Calgary Centennial Planetarium Renovation

by NATALIE BRUCKNER

The Calgary Centennial Planetarium is getting ready to open its doors as a new world-class gallery for modern and contemporary art, putting Calgary on the map as a destination for the visual arts.

After having sat vacant for a number of years, the Calgary Centennial Planetarium has been brought back to life again thanks to a \$24.5-million investment by the City's Cultural Municipal Sustainability Initiative and an agreement with Contemporary Calgary, who will occupy the building.

Originally built in 1967 for the 100th anniversary of Canada's Confederation, the Brutalist-style Planetarium was in need of a renovation to bring it into compliance with current building codes, while also retaining the building as a historical statement of significance. Phase one of the project began in 2016 and consisted of various upgrades to restrooms and food preparation room, the construction of a media room, and the conversion of the main room to a large gallery space, while phase two saw a number of much-needed upgrades including the replacement of the heating system, a modernization of the HVAC system, upgrades to the electrical systems, the replacement of the roof, and the construction of a new plaza entryway.

"Most of the renovation work has been focused on allowing the original building to take centre stage, and have the modern touches seamlessly blend in and feel like they have always been there," explains Cassie Brannagan, spokesperson for the City of Calgary.

It was decided that the best use of the Planetarium was to convert it from a building with a very specific function into an open gallery for modern and contemporary art. But in order to do so required careful demolition and renovation. "As you can imagine, the Planetarium has some very interesting original features including a beautiful mosaic floor and a retractable roof. The idea was to take away the cosmetic aspects that had been added over the years and bring back the original intention and expressions of the planetarium," says Dedre Toker from Lemay + Toker.

Of course, as with many renovation projects, the biggest challenges faced by the team – that consisted of Lemay + Toker, RJC Engineers, EllisDon Corporation, Remedy Engineering, SMP Engineering, Williams Engineering, and Scatliff Miller Murray – were the unknowns. RJC Engineers and the team worked closely together to assess the as built details of the existing exposed and concealed structural elements, both above and below grade.

"Over the past 50 years there have been significant changes in building materials and the science behind them. There was a great amount of work involved in peeling away the layers and determining what can be salvaged, and what needed to be replaced," explains Brannagan.

Due to a roof leak the ceiling of the atrium had become deteriorated to the point it could not be salvaged. "Our team used 3D laser scanning to fully map and create a model of the unique geometry of the original ceiling. Using this model, they were then able to digitally integrate all the current requirements around systems such fire protection, mechanical, and electrical," says Brannagan.

False ceilings that were installed during its science centre days have now been removed and the original waffle slab has been exposed to create visual interest and recreate the original wow factor.

"We included lots of clear glass, rich veneer and lighting as we didn't want to bring in more concrete to compete with the Brutalist structure," says Toker. The goal was to bring more warmth and elegance to contrast and highlight the unique texture and patterns of the original concrete work.

Also during its science centre life, the Planetarium's main access was in a different location and so part of Lemay + Toker's scope was to emphasize the entrance at ground level with clear wayfinding.

Accessibility was of course key to this project and Brannagan explains that a remarkable aspect of the building is the nearly universal accessibility. "This is of great importance for the

City and most modern building design, but very little needed to be done as part of this renovation. There are ramps and elevators throughout the original building, servicing all public areas. This forethought of the original designers has allowed us to keep true to the original architecture, while still having the required modern amenities," adds Brannagan.

Mechanical and electrical systems in the Planetarium were still from the 1960s, so RJC Engineers worked closely with the architect and contractor to avoid or minimize the impact of the work on the historical aspects of the concrete structure.

"We also reviewed and assessed the structural impact of cutting over 200 cores for new mechanical and electrical services throughout the facility, to avoid or minimize the effect on the structure capacity," explains Ken Laustsen, principal at RJC Engineers.

SMP Engineering was tasked with removing the base electrical systems from the building and replacing them with all new systems. "This was done to provide current technology and allow for wider systems distribution throughout the building," explains Geoff Bouckley, lighting designer at SMP Engineering. "The key systems installed were power distribution that allowed for the building to be broken up into user group components, fibre optic internet connections, enhanced security devices, modern fire alarm systems, life safety lighting that is now up to code as well as modern LED lighting throughout the facility that is controlled by a distributed dimming system."

Bouckley adds that tracing existing systems and available pathways between rooms involved experienced guesswork and testing. "Layered on top were the architectural heritage requirements which necessitated planning to rebuild ceilings and walls, while integrating new systems that would not look out of place. The project was also given several 'arts group tenant types' to design for, which resulted in design revisions and options that balanced the needs of these various

LOCATION
701 11th Street SW, Calgary, Alberta

OWNER/DEVELOPER
City of Calgary

ARCHITECT
Lemay + Toker

GENERAL CONTRACTOR
EllisDon Construction

STRUCTURAL CONSULTANT
RJC Engineers

MECHANICAL CONSULTANT
Remedy Engineering

**ELECTRICAL/
LIGHTING DESIGN CONSULTANT**
SMP Engineering

BUILDING ENVELOPE CONSULTANT
Williams Engineering

LANDSCAPE ARCHITECT
Scatliff Miller Murray

TOTAL COST
\$24.5 million

tenants with the aim of being a versatile facility that catered to all."

It's fair to say that both electrically and mechanically, thanks to SMP Engineering and Remedy Engineering, the Planetarium has been transformed into a signature 21st-century cultural facility, while maintaining as much of its mid-20th century heritage as possible. "The opportunity to radically alter a culturally significant building does not occur often and requires a sensitivity to the design and implementation of all systems," says Bouckley.

Outside, the landscape design focuses on providing an open entry plaza that complements the unique Brutalistic style. "The primary challenge was celebrating the entry of the historic building which required adaptation to evolving urban conditions. The design uses tectonic sculptural forms and raw materials to focus and direct attention to the main entry," says Adam Patterson at Scatliff Miller Murray. "The plaza is intended as a flexible space that can be used for multi-programmable events."

Plant material was chosen for its chinook hardy and seasonal characteristics. Along with integrating into the overall design, the planting design is intended to frame views into the entry.

So far, it is fair to say that the response has been overwhelming, and rightly so. "Every person through the space has had their own unique reaction, and it is these personal stories which truly highlight the value of rehabilitating these older buildings to continue to be a cultural centre point for the next generation," says Brannagan. "We have heard everything from reminiscing of childhood experiences at the planetarium or later the science centre, to architects telling us they studied the building while in school. Across the board, there is tremendous excitement for the future of this building and its ability to continue serving the community." **A**