

# Philip J. Currie Dinosaur Museum

by Guy Wilson-Roberts

RANDY VAN DER VEEN



Scheduled to open in the Spring of 2015, the Philip J. Currie Dinosaur Museum has already been making architectural waves as a world-class educational and research facility located in the heart of Peace Country in Alberta.

Maybe it is the unique location of the museum, on a 10-acre site of former farmland between Wembley and Grand Prairie in northwestern Alberta? Or maybe it is the dramatic way the building design rises out of the surrounding landscape? Or maybe there is something about the dinosaurs themselves (the museum is named after the well-known Canadian palaeontologist) that has everyone involved in the project excited?

"This has been a very special project for our firm," says Martin Baron, partner, Teeple Architects in a press release, "one that we have poured our hearts and souls into, and one that we are extremely excited to see realized."

Russell Bridgeman, senior construction manager at PCL Construction Management Inc., agrees with the sentiment, adding that the Philip J. Currie Dinosaur Museum is a "phenomenal project to be involved in."

The museum will feature extensive gallery spaces, two classrooms, a 64-seat theatre, research and collections areas, a restaurant, gift shop and tourist services on a three-level design. High windows and spacious interior with its unique timber truss design create a truly exceptional museum experience.

But that description doesn't quite do justice to the design itself and the attention to detail required to realize the designer's vision.

And as with any grand vision, there were a number of construction challenges. "The building's location, its shape and geometry," says Bridgeman from PCL when asked about those challenges. "The roofline has numerous corners and slopes with only a couple at 90 degrees."

PCL used Building Information Modeling (BIM) to manage the unique geometry. "Each team used a form of modelling we were able to bring together in one collaborative model, allowing us to check geometry, connections and transitions resulting in minimal errors during the construction of the concrete foundations and slabs, structural steel, and Glulam timber framing. The attention to detail and care taken by the crews is second to none," says Bridgeman.

The 33,000-square-foot building makes extensive use of windows and

natural light, but it is the timber beams and struts that really stand out, and the design is a reference to the dinosaur bones in the museum and the Pipestone Creek dinosaur bonebed – a massive gravesite of the Pachyrhinosaurus, a plant eating dinosaur, dating back 73-million years.

"The Glulam timber framing nodes are incredible," says Bridgeman. "They are constructed out of wood connecting up to seven timber beams on one node."

These nodes were part of the design brief but were refined and re-imagined by Fast + Epp, the structural engineers for the project, along with affiliated design-build company StructureCraft Builders, that was responsible for the timber framing components that define the building. StructureCraft modelled the nodes with its parametric 3D computer tools, and created the complex

contours using digitally cut plywood layers. To carry the large forces, the nodes are reinforced with carefully oriented screws up to five-feet long.

"It was completely free form, with the timber going at different angles," explains Gerald Epp, partner Fast + Epp and president StructureCraft Builders, "How do you crash all these members together and successfully resolve it visually as well as structurally?"

Doing so was a collaborative process starting with the initial brief from the architect, which then went through the structural engineering process. "The architects are the visionaries," says Epp. "The thing we try to do is facilitate that and give them as much as they're looking for, if not more. That's the interesting thing about engineering properly applied to a teamwork environment, in that you can bring your expertise to bear

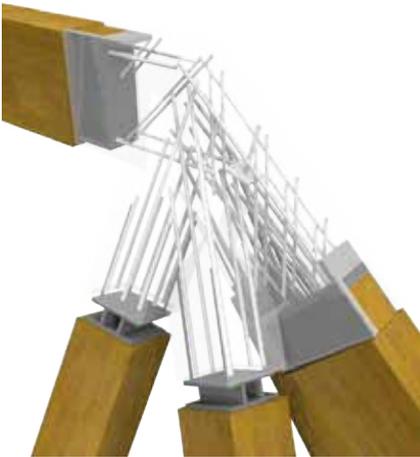
StructureCraft modelled the nodes using parametric 3D computer tools. Photos courtesy Fast+Epp.





RANDY VANDERVEEN

The nodes are reinforced with carefully oriented screws up to five-feet long. Courtesy Fast+Epp.



**LOCATION**  
5 60051 HWY 668, Grande Prairie, Alberta

**OWNER/DEVELOPER**  
Pipestone Creek Dinosaur Initiative

**ARCHITECT**  
Teepie Architects Inc. / Architecture ATB

**CONSTRUCTION MANAGER**  
PCL Construction Management Inc.

**STRUCTURAL CONSULTANT**  
Fast + Epp

**MECHANICAL CONSULTANT**  
Hemisphere Engineering Inc.

**ELECTRICAL/CIVIL CONSULTANT**  
AECOM

**LANDSCAPE ARCHITECT**  
Scatliff+Miller+Murray Inc.

**TIMBER CONTRACTOR**  
StructureCraft Builders

**DISPLAY DESIGNER**  
Reich + Petch

**TOTAL AREA**  
33,000 square feet

**TOTAL COST**  
\$30 million

and help create something better. You're not just there to say 'you can't do that'."

There was a strong spirit of teamwork that ran through the design and construction process, particularly during the construction phase, which started in June 2013. Extensive prefabrication took place in Vancouver, including the specialized timber nodes as well as roof panels and a temporary waterproof membrane, so that the building during winter temperatures could proceed quickly and with quality controls in place using minimal on-site labour.

As well, extensive attention has been lavished on the visitor experience for the public visiting the museum.

"The excellent sightlines of the building and the openness of the space have allowed us to create a really special world on the inside," says Stephen Petri, principal, Reich + Petch Design International, who worked with museum staff

on the exhibits. "All the elements have come together seamlessly to create an immersive visitor experience capturing the excitement of the discovery of new dinosaur species."

The exhibit experiences in the Museum will offer visitors a fresh new perspective that is seldom seen in the world of museums. Visitors will be engaged in an unfolding, increasingly intriguing multimedia and multisensory experience that flows between present and past, surface and underground, inside and outside.

"We brought a new direction to the exhibits that borrow from the experience of gaming and virtual reality," says Petri. "The striking displays of fossil materials and casts will be richly complemented with state-of-the-art digital media and augmented reality to give visitors exclusive glimpses into the world of science and Ancient Alberta. Visitors will be able to see dinosaurs in action, bring fossils to life and explore the real work of scientists in the field."

Stunning though the building is, it is the skeletons of the Pachyrhinosaurus, Dromaeosaurus and Troodon among others on the inside that will probably be the focus of most of the visitors, as well as the ongoing work by the palaeontologists that the museum supports. Epp enthuses, "It was kind of fun – everyone's excited to do a good job." ■



Over 25 years, we have evolved our viewpoint about design to create extraordinary moments and opportunities for people to have experiences that change their understanding and perspective of the world they live in.

## **REICH+PETCH**

1867 Yonge Street Toronto, ON Canada M4S 1Y5  
TEL (416) 480 2020 FAX (416) 480 1881  
[www.reich-petch.com](http://www.reich-petch.com)  
[info@reich-petch.com](mailto:info@reich-petch.com)