



Citation:
Philip J. Currie
Dinosaur Museum
Teepie Architects



Located near Highway 43 in Wembley, Alberta, the Philip J. Currie Dinosaur Museum celebrates one of the world's richest dinosaur-bone beds, Pipestone Creek. The prehistoric remains and the region's hilly topography helped inform Toronto-based Teepie Architects' design of the triangulated structure and its timber skeleton—a pivoted A-frame in which as many as six structural members can converge at one joint.

Tying those members together requires elaborate custom connections, for which the firm initially planned to use steel. Then it determined that laminating CNC-milled Douglas fir plywood would be less complex, expensive, and difficult to craft, says principal Stephen Teepie. Wood would also preserve the aesthetic of the building, which was constructed with beetle-kill pine timber.

Working with Vancouver, British Columbia-based engineering firm Fast + Epp, the architects used Rhinoceros to model and then deconstruct the nodes into manageable 2D pieces for milling. The largest

nodes, at more than 59 inches tall and 94 inches wide, stack together approximately 180 plies.

Using the plug-in Grasshopper, Fast + Epp virtually inserted stainless steel screws, as long as 47 inches, through the modeled nodes as rebar. Similar to a strut-and-tie system, the screws allow the nodes to handle both compression and tension loads, which the firm confirmed through physical mock-ups.

The 3D models also helped Delta, British Columbia-based StructureCraft Builders ensure quality during fabrication. Six-inch-long wooden dowels were inserted into holes drilled into each ply, positioning it within the node stack. Screws were then drilled where the models indicated. "It was a natural flow from the model to production," Teepie says.

"Even though it's a simple project, it was quite innovative in terms of thinking about a joint," juror Joyce Hwang said. Juror Steven Rainville liked that the firm also found a new use for waste material. "It's showing the industry that you can change the paradigm." —J.J.

Judges

French architect **Marc Fornes** is the principal and founder of TheVeryMany in New York, as well as a self-described connoisseur of computer science. His work focuses on investigating design through codes and computational protocols. He received a master of architecture and urbanism from the Architectural Association School of Architecture in London.

Joyce Hwang, AIA, is an associate professor of architecture at the University at Buffalo, the State University of New York, and the director of Ants of the Prairie, a research and practice firm in Buffalo, N.Y., that confronts contemporary ecological conditions through creative means. She received an M.Arch. from Princeton University and a B.Arch. from Cornell University.

Steven Rainville, AIA, is a principal at Seattle-based Olson Kundig Architects, which he joined in 1996. He is also the director of the firm's R&D department as well as the founder of Mind Mine, the firm's forum for crowd-sourced ideas that break down boundaries between industries. He received his B.Arch. from Washington State University.

Credits

Pulp Pavilion, page 104

Client: Coachella Valley Music and Arts Festival
Design Firm and Fabricator: Ball-Nogues Studio, Los Angeles · Gaston Nogues, Benjamin Ball, ASSOC. AIA (project leads/designers); Rafael Sampaio Rocha (project manager); Ricardo Garcia, John Guinn, Fernando Marroquin, Rafael Sampaio Rocha, Forster Rudolph, Corie Saxman, Nicole Semenova, Ethan Schwartz (onsite project team); Andrew Fastman, AIA, Michael Anthony Fontana, Cory Hill, James Jones, Mora Nabi, Jacob Patapoff, Allison Porterfield (support)
Lighting Programming: F. Myles Sciotto
Structural Engineer: Nous Engineering · Omar Garza
Funding: Commission from Goldenvoice
Size: 1,300 square feet

Pure Tension Pavilion, page 108

Client: Volvo Car Italia
Design Firm: Synthesis Design + Architecture, Los Angeles · Alvin Huang, AIA (principal); Filipa Valente, Chia-ching Yang, Behnaz Farahi, Yueming Zhou
Structural Engineer: BuroHappold Engineering
Electrical Engineer: Ascent Solar

Bar Raval, page 110

Client: Grant van Gameren, Mike Webster, and Robin Goodfellow
Design Firm: Partisans, Toronto · Alexander Josephson, Pooya Baktash, Jonathan Friedman, INTL. ASSOC. AIA, Ivan Vasyliiv, Ariel Cooke
Consultant and Fabricator: Millworks Custom Manufacturing
Special Thanks: Klaudiusz Kociolek, Gregory Rybak, Nick Savage, CNC Software/Mastercam
Size: 1,500 square feet

Co-Robotics and Construction, page 112

Design Firm: Rust Belt Robotics Group, University at Buffalo, State University of New York (SUNY)

OSCR-1 and OSCAR-2 Team: Ball State University · Mike Silver, Mahesh Daas, Josh Vermillion (faculty); Yevgen Monakhov, Jason Foley, Matthew Fullenkamp, Assoc. AIA, William Zyck, Justin Krasci, Michael Bolatto, Tyler Cox, Assoc. AIA, Glenn Cramer, Assoc. AIA, Robert Cichocki, Antone Sgro, Derek Anger, Tianxia Peng, Derek Newman, David Smith, Yao Xiao, Matthew Wolak, Thomas Friddle (students)
OSCR-3 Team: University at Buffalo, SUNY Team · Mike Silver, Karthik Dantu (faculty); Colin Jacobs, Tim Ruhl, Albis Del Barrio, David Heaton, Gary Chung, David Lin, Georine Pierre, Robert Miller, Johnny Lynch, Daniel Fiore, Dylan Burns, Jia Jian Feng You, Marc Velocci (students)

Queen Richmond Centre West, page 113

Client and Funding: Allied Properties REIT
Design Firm: Sweeny & Co Architects, Toronto
Structural Engineer: Stephenson Engineering
Fabricators: Cast Connex, Walters Group
Construction Management: Eastern Construction
Electrical Engineer and Lighting Designer: Mulvey & Banani International
Mechanical Engineer: The Mitchell Partnership
Special Thanks: Michael Emory, Hugh Clark, John Stephenson, Jeffrey Stephenson, Carlos de Oliveira, Frank DeCaria, Renato Tacconelli, Tim Verhey
Size: 302,000 square feet

Radical Railbanking, page 114

Design Team: Master of None, Ann Arbor, Mich. · McLain Clutter (project adviser); Sehee Kim (student research assistant)
Funding: University of Michigan Office of Research, funding for Artistic Productions and Performances, 2011; University of Michigan Taubman College of Architecture and Urban Planning
Special Thanks: Syracuse University School of Architecture · Mark Linder

Bands, page 115

Client: Samitaur Constructs · Frederick and

Laurie Samitaur Smith
Design Firm: Eric Owen Moss Architects, Culver City, Calif. · Eric Owen Moss, FAIA (architect); Dolan Daggett, Vanessa Jauregui, Nicholas Barger, Zarmine Nigohos, Sean Briski, Raul Garcia, Scott Nakao, Richard Yoo (project team)
Structural Engineer: Arup
Size: 183,000 square feet

Philip J. Currie Dinosaur Museum, page 116

Client: Philip J. Currie Dinosaur Museum
Design Firm: Teeple Architects, Toronto · Stephen Teeple, Martin Baron, Mark Baechler, Will Elsworth, Lang Cheng, Carla Pareja, Gloria Perez
Architect of Record: Architecture | Tkalci Bengert
Structural Engineer: Fast + Epp
Mechanical Engineer: Hemisphere Engineering
Electrical and Civil Engineer: AECOM
Exhibit Consultant: Reich+Petch
Landscape Architects: Scatliff+Miller+Murray
LEED Consultant: Enermodal Engineering (now part of MMM Group)
Contractor: PCL Construction Management
Fabricators: StructureCraft Builders in collaboration with Fast + Epp
Size: 42,000 square feet

Breathe Brick, page 117

Design Firm: Both Landscape and Architecture, Charlottesville, Va. · Carmen Trudell (primary investigator)
Collaborators: California Polytechnic State University, San Luis Obispo (Cal Poly) · Tracy Thatcher (consultant); Natacha Schneider, Kate Hajash, Cameron Venancio, Justin Wrapp, Jennifer Thompson, Michelle Kolb (student research assistants); Rensselaer Polytechnic Institute · Kateri Knapp, Kyleen Hoover (student research assistants)
Funding: Cal Poly College of Architecture and Environmental Design's Planning, Design and Construction Institute