Fast + Epp

THE OLD MAIN ADDITION
THOMPSON RIVERS UNIVERSITY LAW SCHOOL

Kamloops, British Columbia

CANADIAN CONSULTING engineer

ASSOCIATION OF CONSULTING ENGINEERING COMPANIES BRITISH COLUMBIA

The Old Main Addition - Thompson Rivers University

Kamloops, British Columbia

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Entering Firm: Fast + Epp — Structural Engineering

Project Leader: Ian Boyle

Project Owner: Thompson Rivers University
(contact: Matt Milovick, VP Administration and Finance)

Project Client/Prime Architect: Diamond Schmitt Architects
(contact: Walton Chan, Associate)

Local Architect: Stantec
(contact: Brian Christianson)

Fast + Epp

201 - 1672 West 1st Avenue
Vancouver, BC V6J 1G1
T: 604.731.7412
F: 604.731.7620
afaulkner@fastepp.com
ATTN : Alison Faulkner

THE OLD MAIN ADDITION: THOMPSON RIVERS UNIVERSITY – Fast + Epp

75-Word Summary

The Old Main Addition features the renovation and addition of 45,000 square feet, transforming an existing two-storey structure into a prominent four-storey campus building. The structure's undulating prefabricated wood roof panels symbolize the regions nearby mountain ranges and allowed for simultaneous site construction and roof fabrication. The curvature of the roof combined with First Nations elements featured in the interior finishes, presents the University as an iconic landmark, setting the tone for future campus buildings.

Project Highlights

Innovation

The Old Main Addition at Thompson Rivers University (TRU) in Kamloops, British Columbia, is home to the first Law School in the country in over three decades. The 45,000 square feet of academic space was added atop an existing 1960s-era building. The campus not only overlooks the North and South Thompson Rivers, but the soft, rolling hills of Mount Paul and Mount Peter as well. The beautifully lush landscape and First Nations heritage that is a part of TRU's identity were the key factors behind the inspiration of the Addition.

To make a connection to the landscape and its people, the roof design features an undulating, 400 foot-long addition comprised of prefabricated panels that echo the soft rolling mountains that surround the campus. The use of prefabricated panels was beneficial in meeting the time constraints of the project, the roof had to be erected and enclosed within a 4 month period during summer break. The panels were assembled in Vancouver and shipped to site with beams, joists, and decking in place. The initial design consisted of C-shaped steel beams with solid wood decking between but eventually transitioned to wood beam, joist, and plywood once a cost savings was offered.

Existing foundation and lateral capacities nearly prevented using the existing roof as the new 3rd floor level. Wood was introduced as a means to reduce the weight and lateral impact to the base building, as well as create a warm and inviting aesthetic for the Law School addition.

Complexity

The two primary challenges were to install a structural shell within a tight schedule and ensure the base building was not overloaded. The lightweight prefabricated panels addressed both of these concerns to meet the client's expectations.

The timeline for completing the addition was extremely short given the amount of work involved. Added to the challenge of a tight schedule, production was limited to summer months, weekends and evenings so as not to disrupt students. Due to these restrictive time and budget constraints, the roof delivery and installation was carefully strategized by utilizing prefabricated wood panels as a kit-of-parts which were assembled quickly and efficiently.

Seismic upgrade to the lower levels was conducted in the evenings and weekend prior to the roof addition.

The placement of the roof structure on the third and fourth floors of the existing building was too tall to permit flammable materials in its structure. Therefore, an alternative solution based on heavy timber and fire-retardant-treated lumber was required. Computer modeling of potential fire conditions was used to demonstrate that the building would safely meet code. The success of this approach opens up new opportunities for wood structure in building types where it cannot be conventionally used.

Social and/or Economic Benefits

The use of local wood for the Old Main Addition allowed for fabrication and assembly to remain within the province, which reduced transportation costs and was highly beneficial to the local economy. In addition, the use of wood with its permeable surface, afforded the designers the opportunity to incorporate First Nations elements into the finishes of the overall design.

The use of wood adds warmth and human scale to the large spaces found within the building that might otherwise feel impersonal and cold. Wood is also used extensively in millwork, lending refinement and a welcoming feeling to reception desks, benches, and in particular the curved desks in the main lecture rooms. Bands of veneered plywood are used for the front panels of these desks which display a subtle pattern that suggests the basket-weaving traditions of the indigenous cultures. Overall, the wood finishes in the lecture rooms provide a calm and harmonious environment conducive to learning.

Environmental Benefits

The sustainable nature of wood was an important consideration for this project, and although the project was not pursuing LEED certification, it is LEED compliant. Everything from mechanical and electrical systems to the materials and finishes were selected for their sustainability. These elements include glazing, a highly insulated envelope and a reflective roof membrane. The structure added onto the existing building needed to be a lightweight material, so wood was the optimal choice. Added to the benefit of being a lightweight material wood acts as a natural humidity regulator. It absorbs humidity in damp conditions and releases moisture in dry conditions, both environments that occur in Kamloops. Finally, wood has sound thermal properties that allow the structure to rely less on carbon-emitting heating and cooling appliances than buildings constructed of other materials.

Meeting Client's Needs

Thompson Rivers University desired a highly visible, iconic building that would bring attention to the new Law School and the university as a whole. In addition, they wanted the Main Addition to be recognized as a landmark and a livable, vibrant space. The overall design relates to the surrounding landscape due to the inclusion of wood panels for the roof, cedar for the overhang, and includes such details as the color palette chosen for certain materials.

Figure 1: Pre-fabricated panel erection. Photo Credit: Yellowridge Construction

Figure 2: Installed panels prior to tenant improvements. Photo Credit: Mathias Fast

Figure 3: Completed shell prior to fit out. Photo Credit: Florian Maurer

Figure 4: Completed shell prior to fit out. Photo Credit: Florian Maurer

Figure 5: Exterior south elevation. PhotoCredit: Florian Maurer

Figure 6: Interior lobby during fit out construction. Photo Credit: Mathias Fast

Figure 8: Exterior north entry. Photo Credit: Mathias Fast

Figure 7: Exterior south entry. Photo Credit: Mathias Fast