



ALBERTA INNOVATES

AGRICULTURE AND ENVIRONMENT

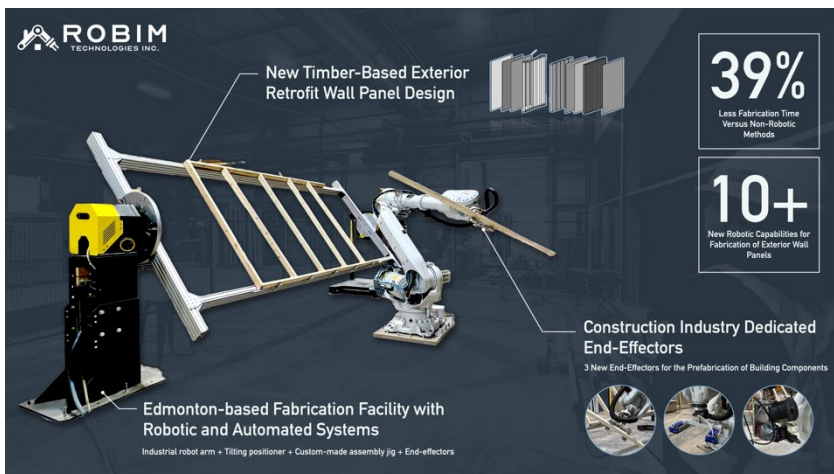
BIOINDUSTRIAL AND CIRCULAR INNOVATION

BIOINDUSTRIAL MATERIALS

FUNDING
DETAILS

Robotic Fabrication Technologies for Prefabricated Exterior Energy Retrofits Using Engineered Wood Products

RoBIM Technologies Inc. is developing an end-to-end robotic solution to fabricate construction components on or near buildings sites. This project aimed to improve the productivity and efficiency of fabricating wall panels for exterior building retrofits. By integrating robotic and automation technologies, the project achieved significant labor savings, and validated the production of retrofit wall panels for commercial and residential buildings in an appropriate operational environment (TRL 7). Key results included the development of 13 new robotic capabilities, successful sim-to-real demonstrations, and the establishment of a robotic facility in Edmonton. This project addresses labor shortages and contributes to reducing greenhouse gas emissions through efficient building retrofits and a robust ecosystem of 15 partners.



RECIPIENT:
**RoBIM
Technologies Inc.**



PARTNERS:
Clark Builders | AltaFab
Structures | University of
Alberta | ABB Canada |
DIALOG Design | NRCan |
LJ Welding Automation



TOTAL BUDGET:
\$893,230



AI FUNDING:
\$250,000



PROJECT DATES:
**March 2022 -
February 2024**



PROJECT TRL:
**Start: 3
End: 7**

APPLICATION

The target market for the RoBIM solution is the construction industry, with the goal of bringing robotics to construction sites to improve project efficiency and the quality of fabricated building components. Construction is one of the largest industries in Alberta (and the world) and, compared to other sectors, has not yet experienced significant productivity gains through the implementation of new technologies. The adoption of robotics and automation presents key opportunities to achieve these productivity improvements.

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PROJECT GOALS

- Improve the productivity of exterior wall panel fabrication by using RoBIM's robotic and automation technologies.
- Optimize exterior retrofit wall panel designs from perspectives of energy efficiency, structural integrity, and robotic constructability with the introduction of biomaterials.
- Develop and prototype a construction industry prefabrication facility.
- Demonstrate robotic capabilities in building prefabrication and validate the potential benefits in improving productivity and reducing the need for human labour.

BENEFITS TO ALBERTA

- Building a new commercial ecosystem for innovative construction techniques by partnering with a leading architectural design firm, general contractor, building owner, research institution, and robotic solution provider.
- Improving green construction methods by introducing more environmentally friendly building materials, minimizing construction waste, improving constructability, and introducing cost and process efficiencies.
- Developing competitive technologies that can be commercially applied to the global construction industry.
- Training cross-disciplinary HQP including students at the University of Alberta and creating new job opportunities in Alberta to advance the global competitiveness of Alberta's and Canada's construction industry.
- Establishing an Edmonton-based development facility with robotic systems that can be further utilized to fabricate other types of construction industry components.



**3 Students
Trained**



**2
Patents**



**3
Publications**



**3 New
Products/Services**



**8-50
Future Jobs**

CURRENT STATUS

May 2024 - Complete

RoBIM Technologies Inc. completed the development, prototyping, and testing of a robotic solution for fabricating exterior wall panels for building retrofits. The first order from a proof-of-concept customer for exterior retrofit wall panels has been fulfilled. RoBIM is now moving toward volume production of these retrofit panels to complete a full-building retrofit. Additionally, RoBIM is actively engaging with its industry partners to explore potential joint ventures for the fabrication of exterior retrofit panels.

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