



HORIZON
LEGACY
CONSTRUCTION AUTOMATION

University of New Brunswick Off-site Construction Research Centre



AGENDA:

- Introduction: Horizon Legacy
- Our Journey: Embracing Innovation
- Global Trends in 3D Concrete Printing
- Behind the Build
- What's Next
- Q&A



Archer Compton
Director of Strategic Growth

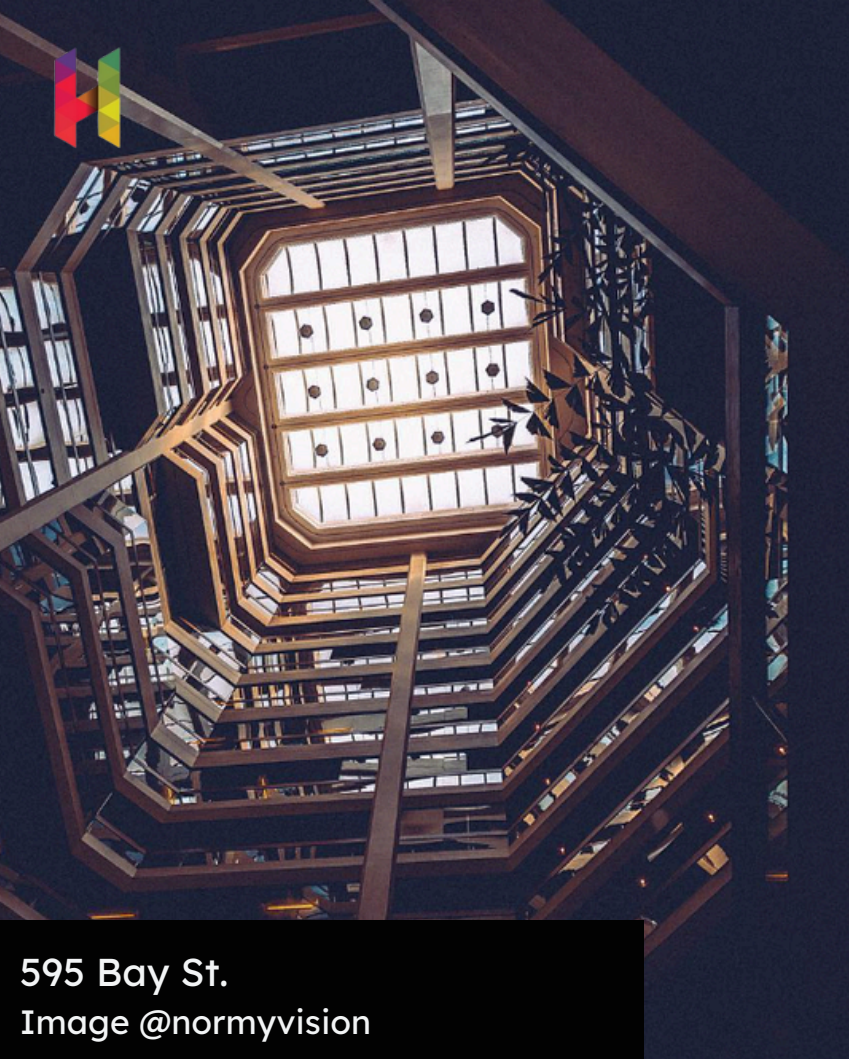


Ioulis Georgiou
Digital Architect

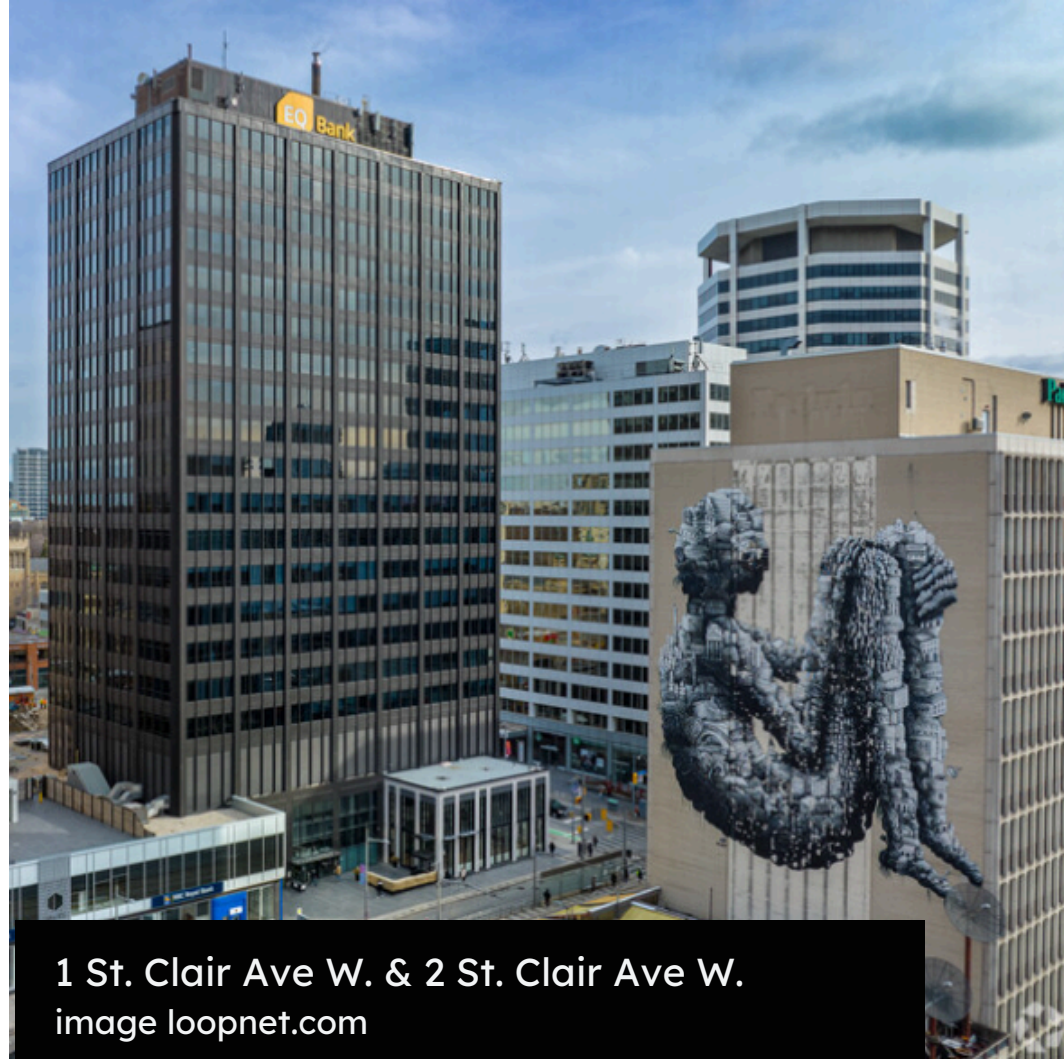


595 Bay St. • 40 Dundas St. West • 4 King St. West • 55 Yonge St. • 60 Yonge St. • 18 King St. East • 7 King East • 20 Victoria • 44 Victoria
1 St. Clair West • 2 St. Clair West • 2221 Yonge St. • 2300 Yonge St. • 20 Eglinton West • 411 Duplex • 33 Orchard View

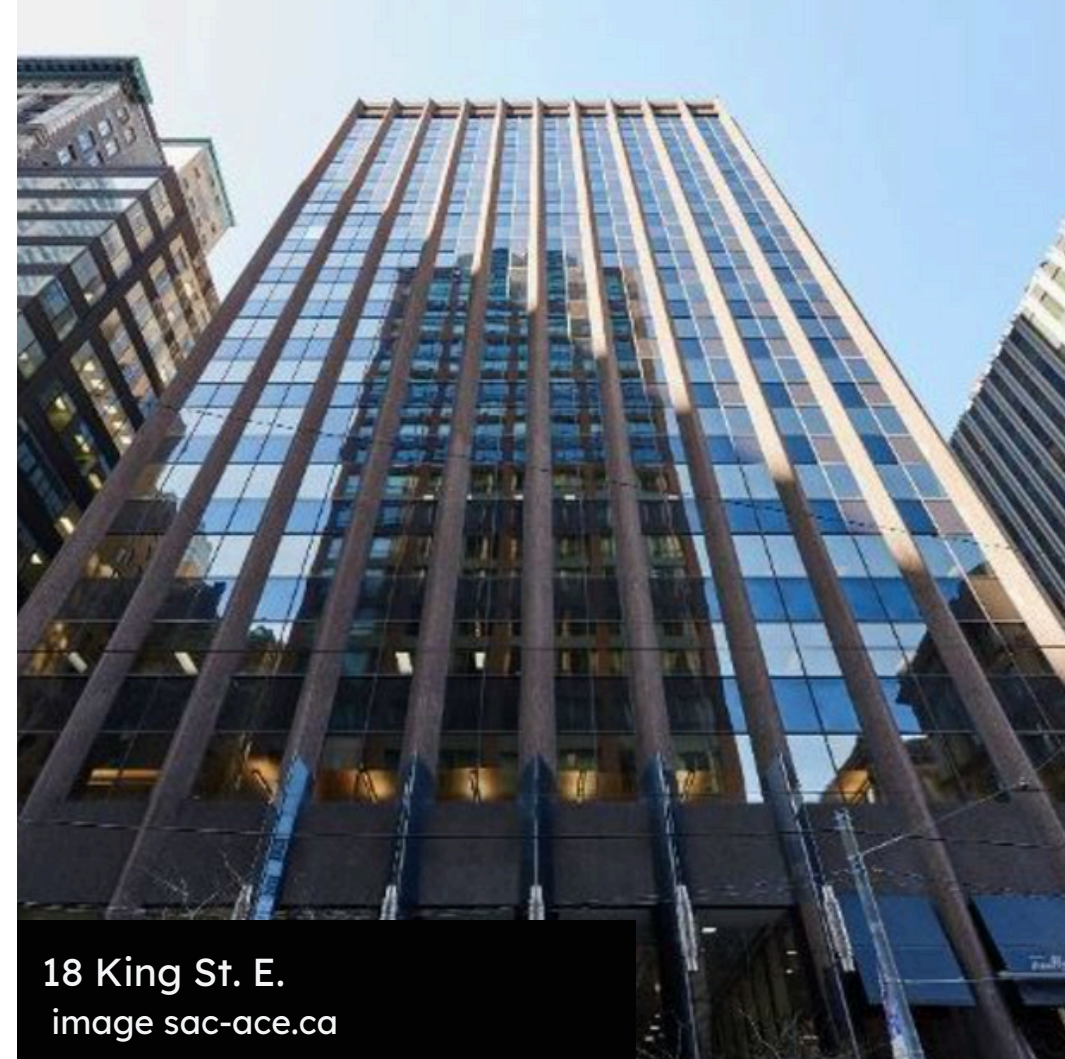
70
YEAR LEGACY



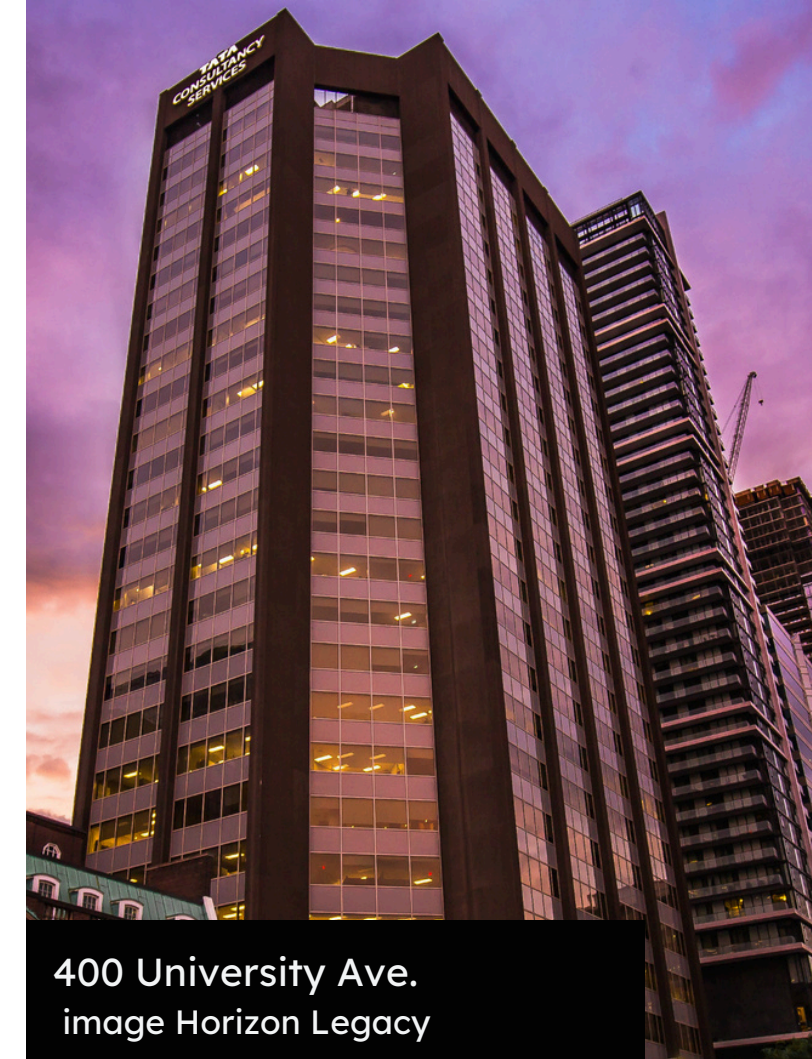
595 Bay St.
Image @normyvision



1 St. Clair Ave W. & 2 St. Clair Ave W.
image loopnet.com



18 King St. E.
image sac-ace.ca



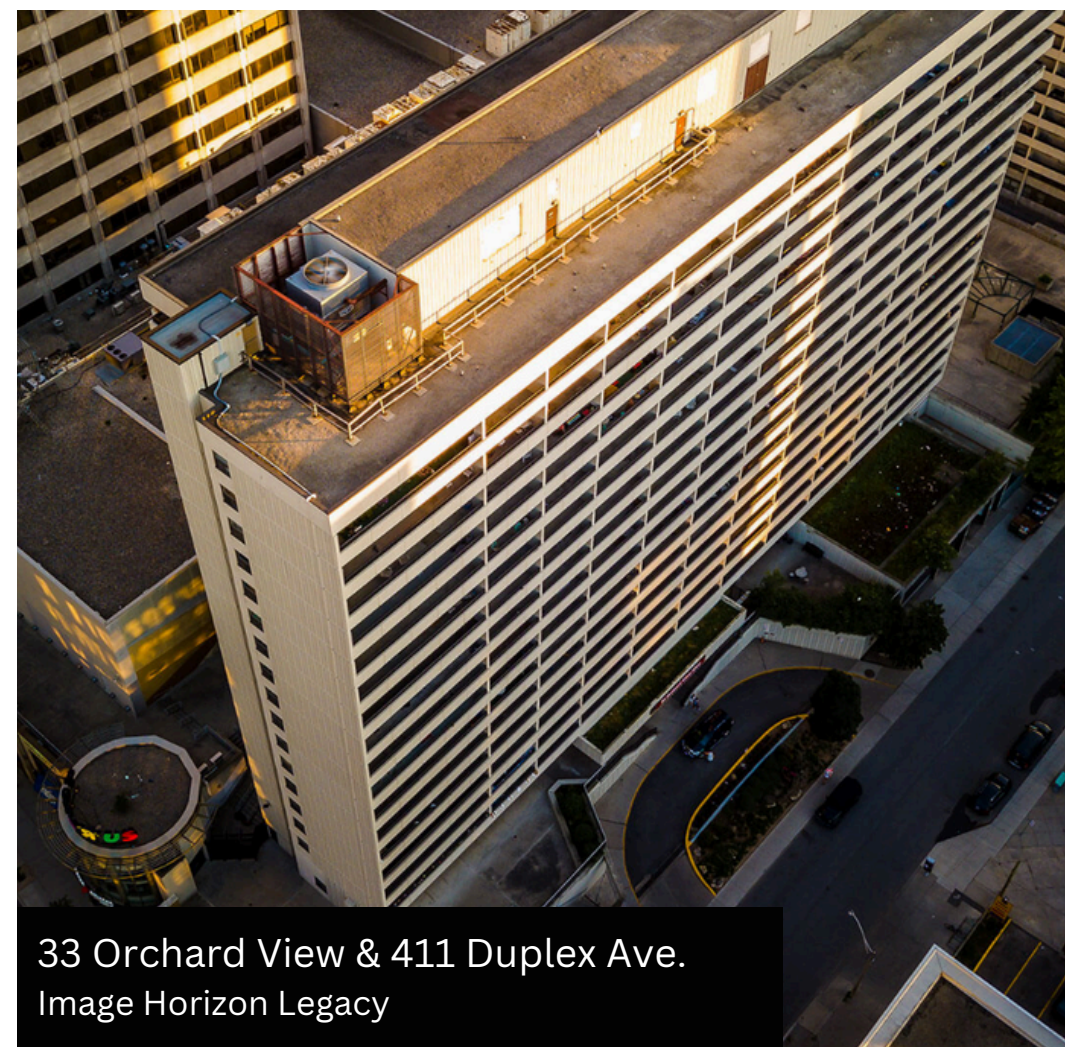
400 University Ave.
image Horizon Legacy



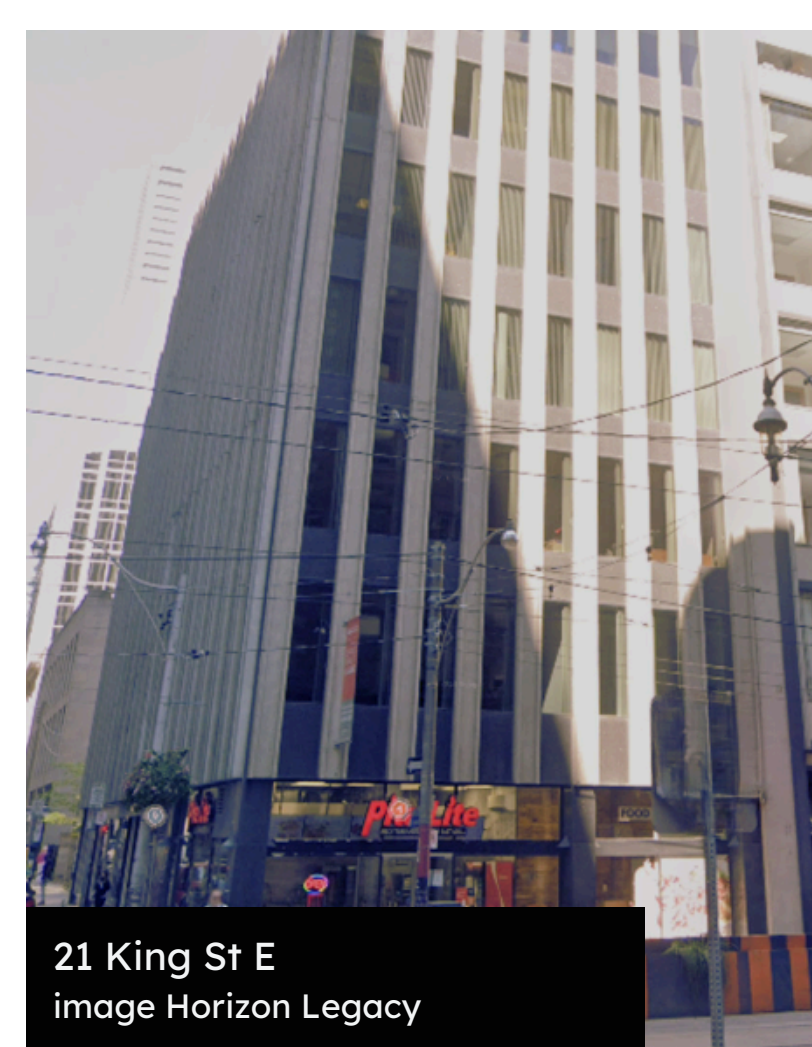
1 Adelaide St. E.
Image @normyvision



40 St. Clair Ave. W.
image Horizon Legacy



33 Orchard View & 411 Duplex Ave.
Image Horizon Legacy



21 King St E
image Horizon Legacy

PORTFOLIO: RENEWABLE ENERGY

2008 - 2023



Wind
Solar
Water Power



Owned,
Operated &
Developed
\$150M
Portfolio





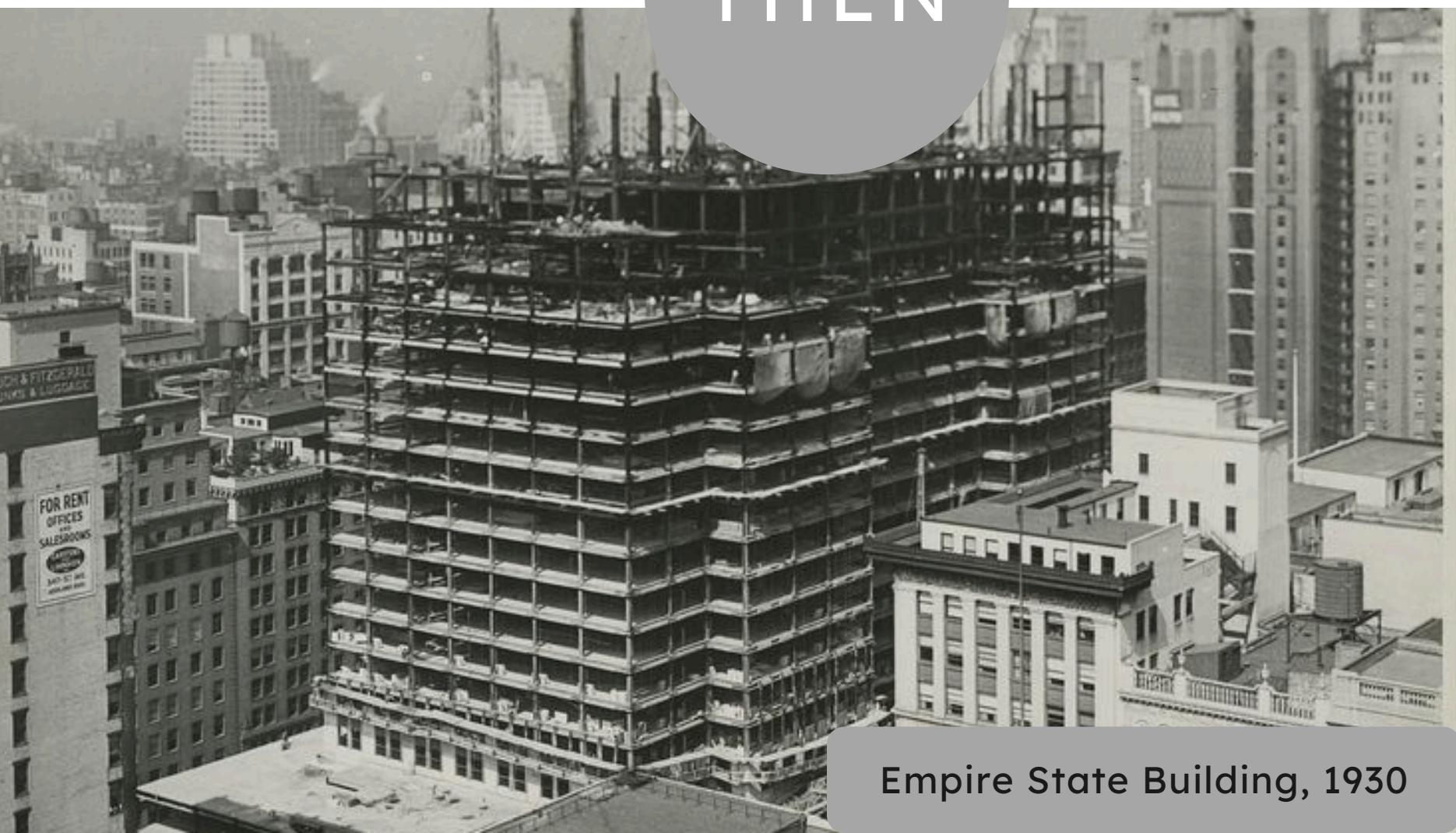
Ford Model T, 1927

THEN



Toyota production line

NOW



Empire State Building, 1930



London skyscrapers



CONSTRUCTION AUTOMATION LAB

5000 SQ FT
ONE OF THE FIRST OF ITS KIND IN CANADA
TESTING, DEMONSTRATION, PROTOTYPING



123 Garratt Blvd, North York ON.



CONSTRUCTION AUTOMATION

Vertically integrated development, technology, construction

- Automation Technician
- Robotics Engineering
- Construction Automation Engineering
- Concrete Material Specialist
- Electrical Systems & Controls Technician
- General Labour
- Digital Architect



BENEFITS OF 3D CONCRETE PRINTING

CONSTRUCTION AUTOMATION

01

Labour Efficiency

Reduces need for skilled on-site workers in remote areas.

02

Customization

Scalable for rapid housing, storage, or operations.

03

Community

Create new jobs in remote communities with transferable skills.

04

Speed

Increase productivity through faster construction.

05

Climate Resilience

Designed to withstand Canada's extreme weather conditions.

06

Low Site Impact

Minimizes equipment, space, and material handling needs.

GLOBAL TRENDS IN 3D-PRINTING



House Zero, Austin, TX. ICON Architect: Lake Flato

Hybrid Construction



10 Houses in a Day, Shanghai, China. WinSun China

Fast-Paced Mass Production & Automation



Casa Covida, San Luis Valley, CO. Emerging Objects

Cultural Context Integration

GLOBAL TRENDS IN 3D-PRINTING

LANDSCAPE ARCHITECTURE



GLOBAL TRENDS IN 3D-PRINTING

ARCHITECTURAL DESIGN



HORIZON R&D LAB: BEHIND THE SCENES

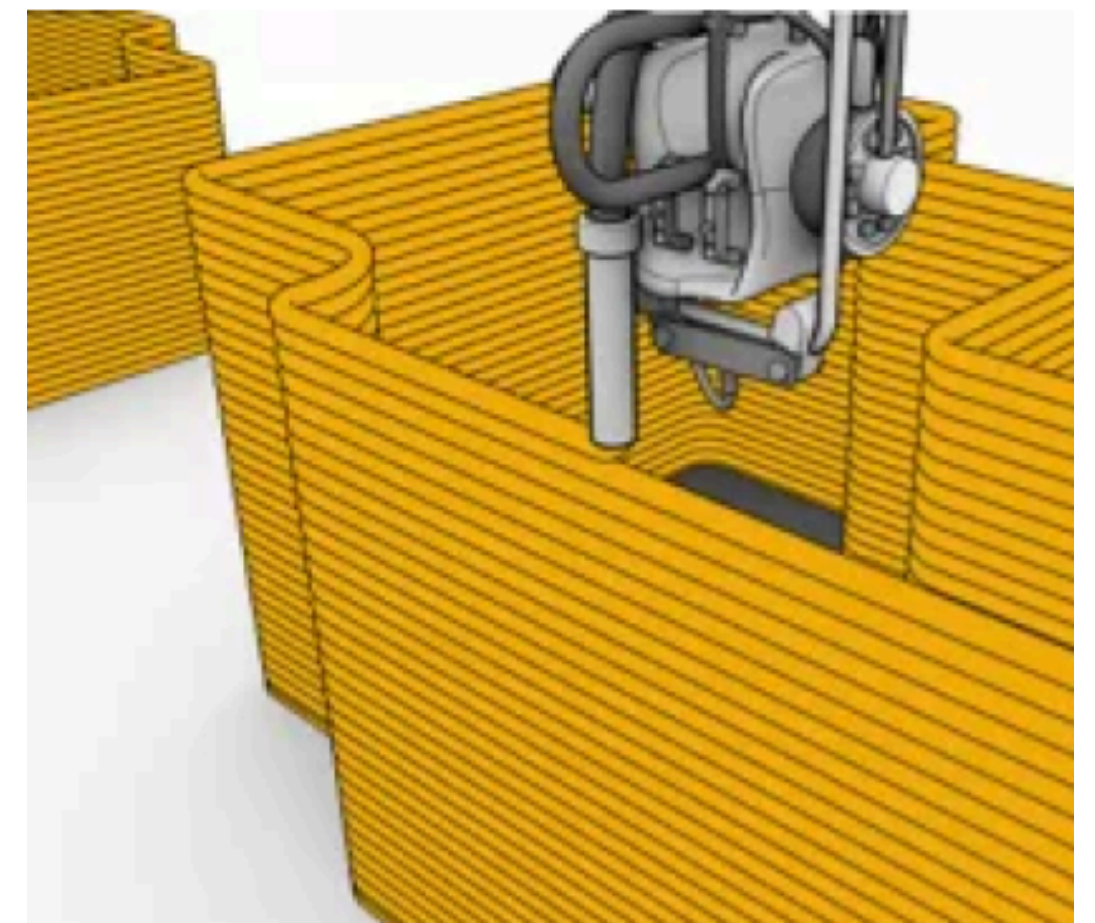
3D-PRINTING AT A LARGE SCALE

PRINTING PARAMETERS:

Layer Height: 10 mm -14 mm

Layer Width: 40 mm - 70 mm

Speed: 200 mm/s - 500 mm/s



DESIGN & COMPUTATION

DIGITAL TOOLS

3D Parametric Modeling

Topology Optimization

Printing Simulation

BIM Integration



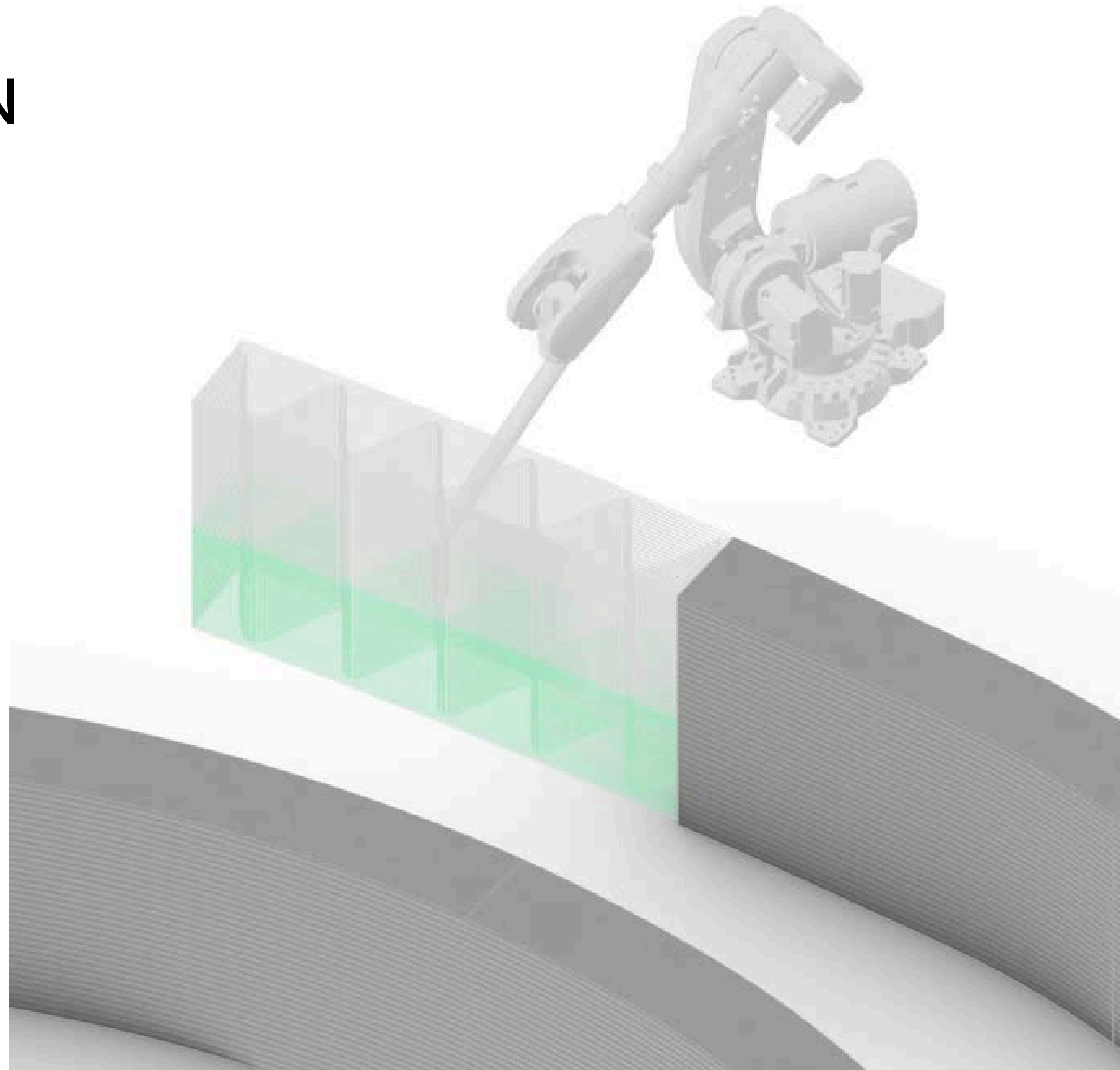
Geometry & Path



Code



Code Control





Architectural Walls

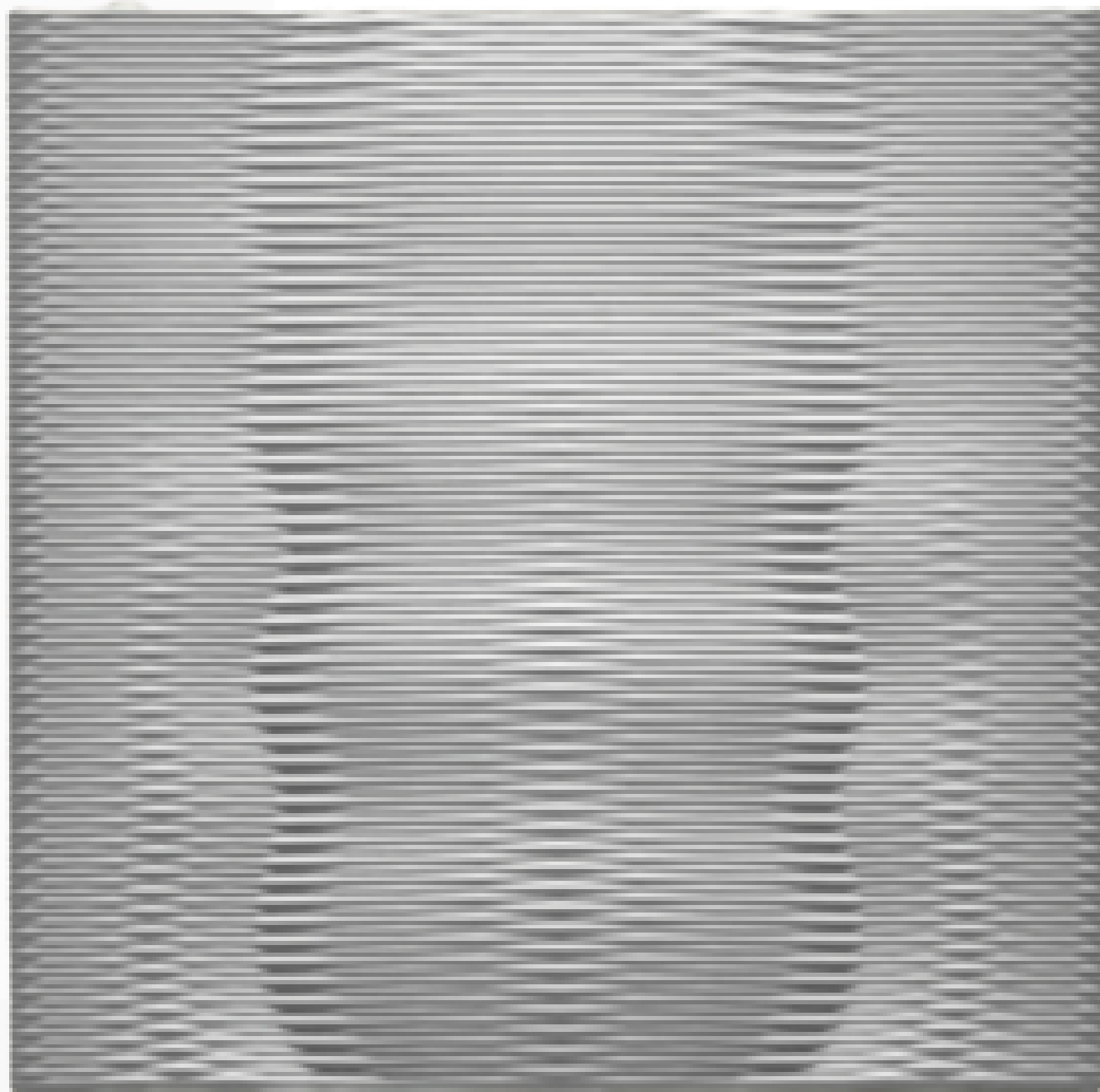


Architectural Column



Architectural Walls

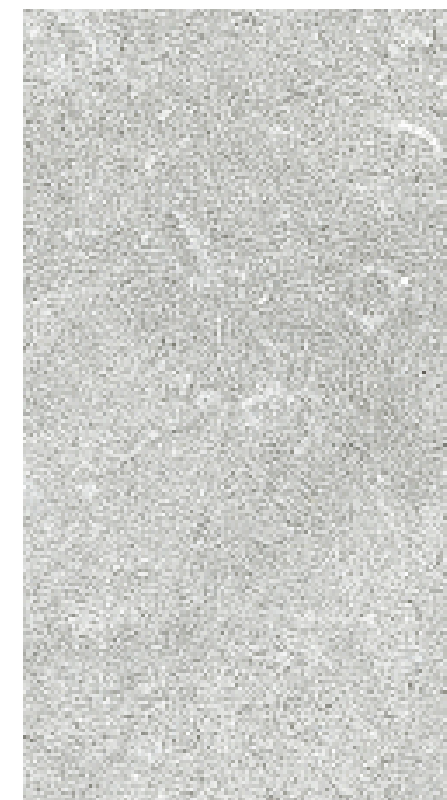
PATTERN & TEXTURE SELECTION



white



astro



bedrock



brick works red

425 Fourth St. Gananoque, ON.



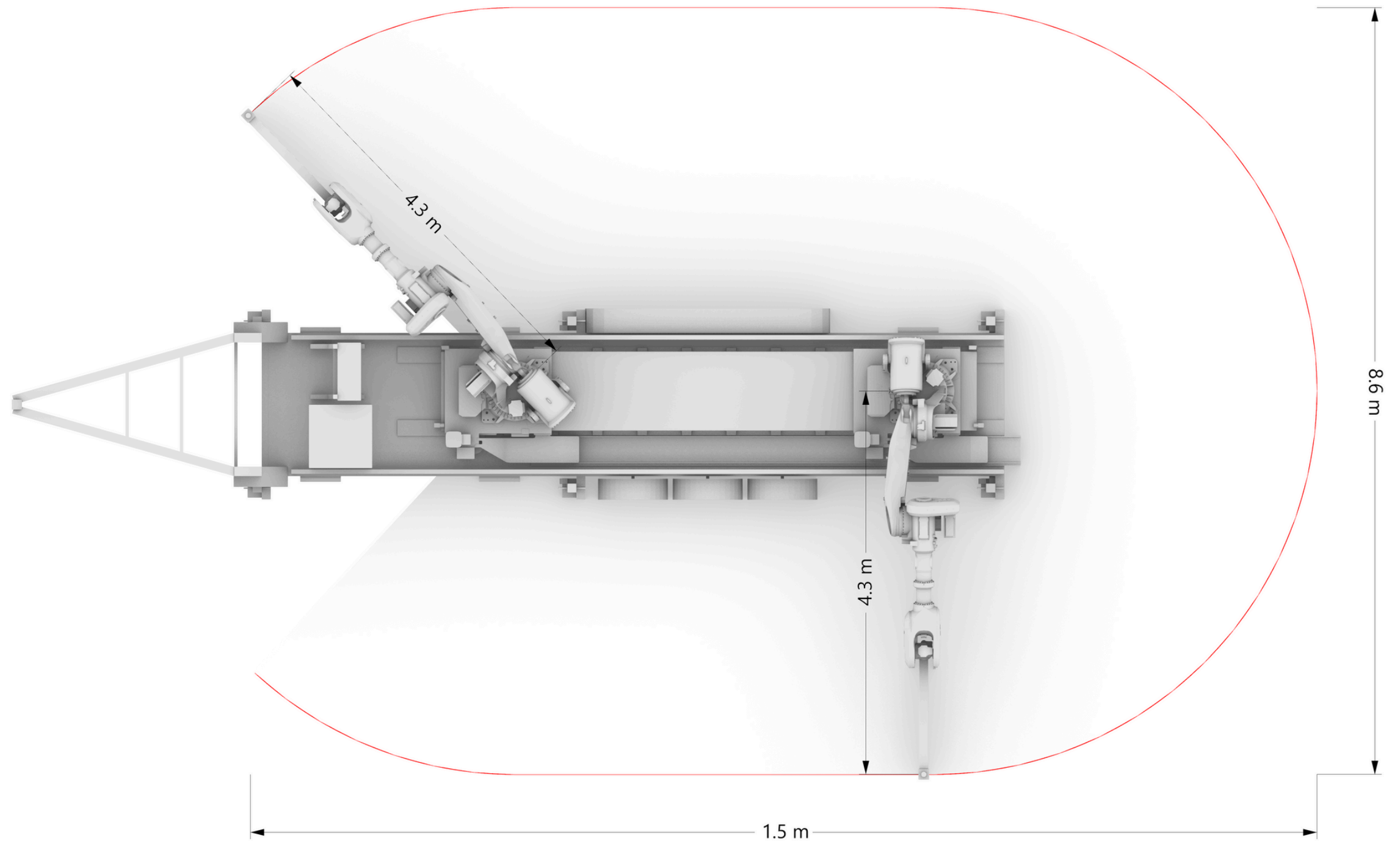
- 26 Rentals built under \$300K per unit
- 67% less GHG consumed over life time
- Ontario Building Code met
- Single-Storey 3D-Printing

425 Fourth St. Gananoque, ON.



425 Fourth St. Gananoque, ON. Robotic Development

- 6-Axis Robotic Manipulator
- 7th Axis Horizontal Rail
- Designed for Wall Construction

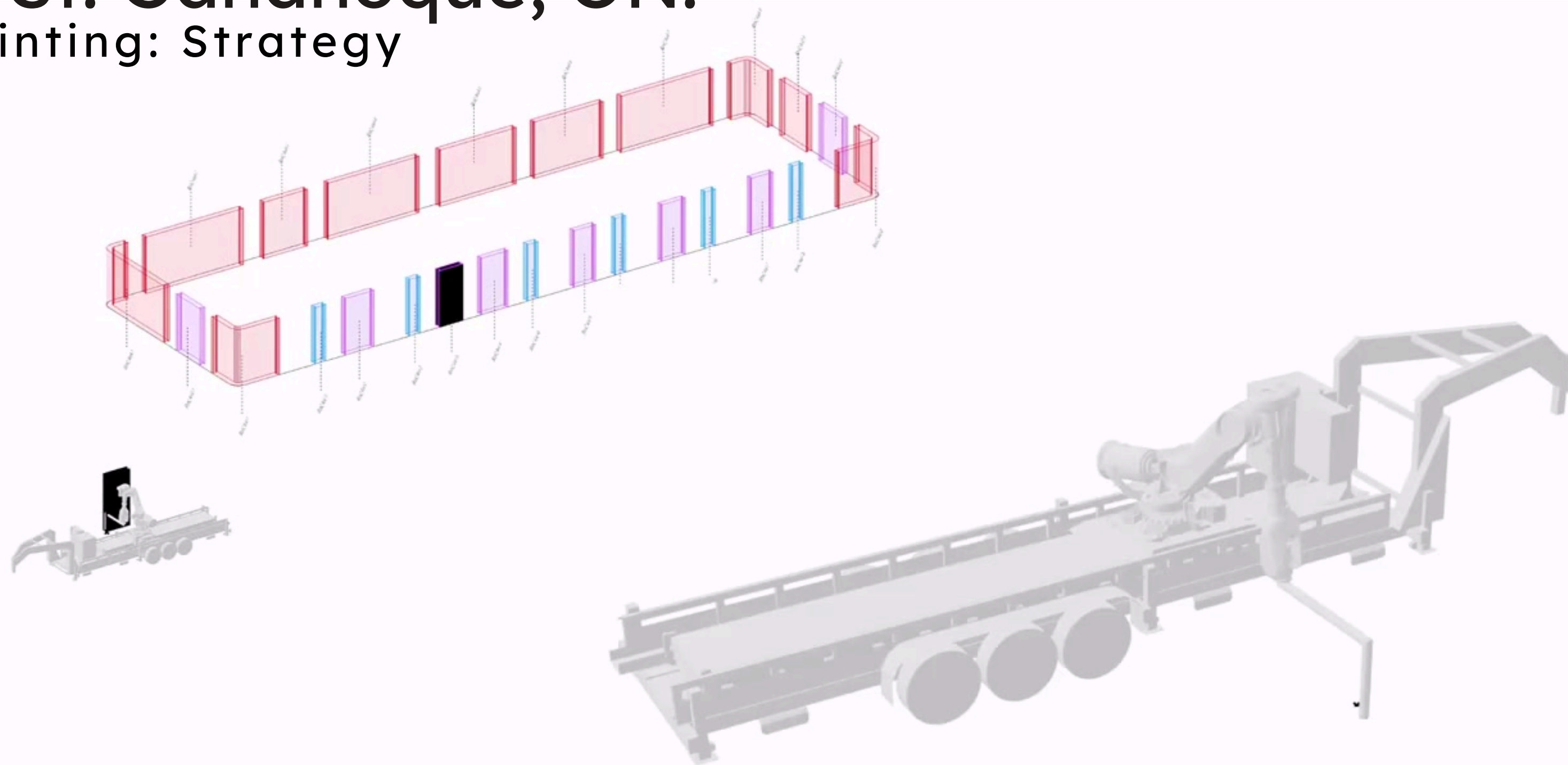


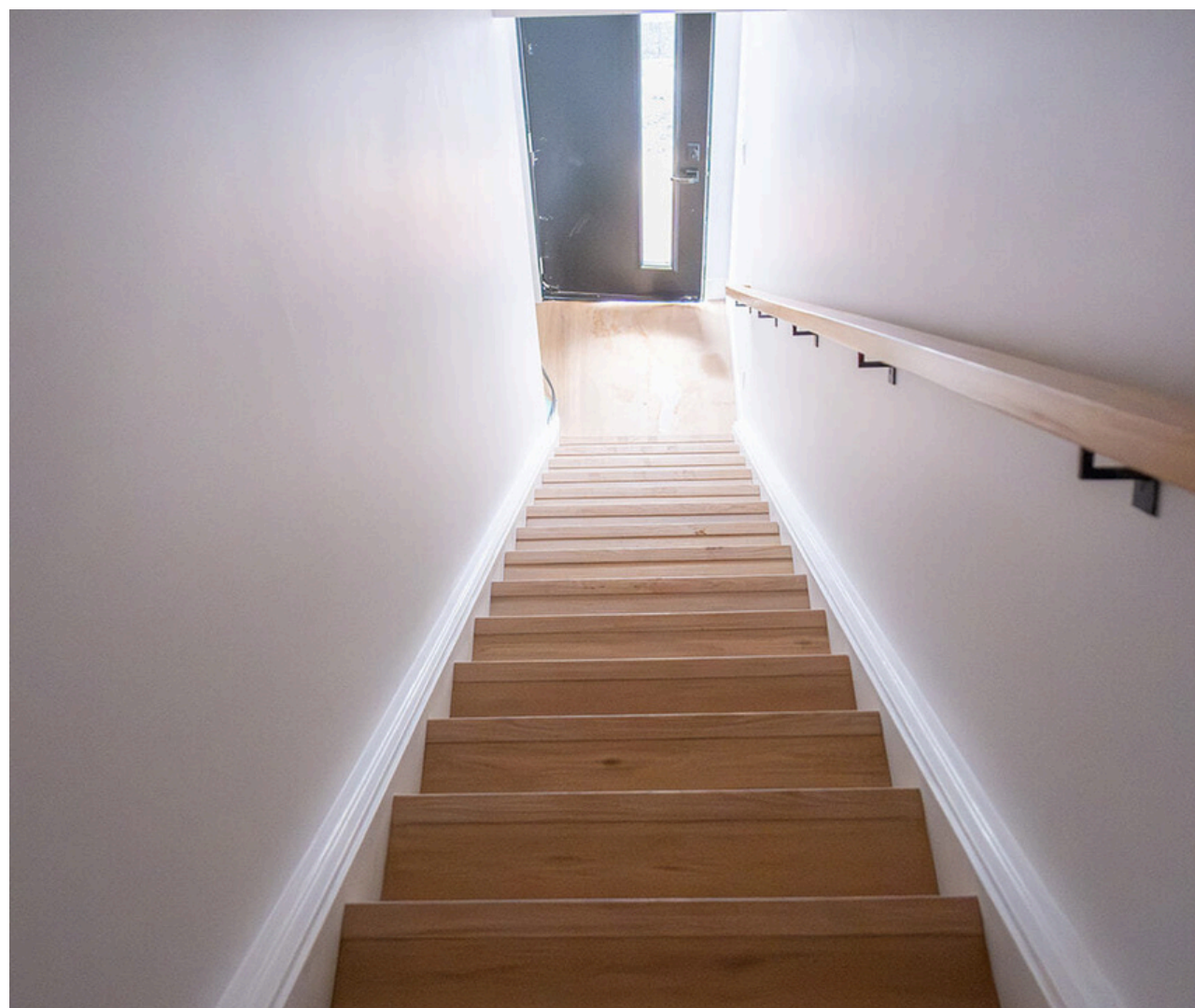
425 Fourth St. Gananoque, ON.



425 Fourth St. Gananoque, ON.

3D Concrete Printing: Strategy

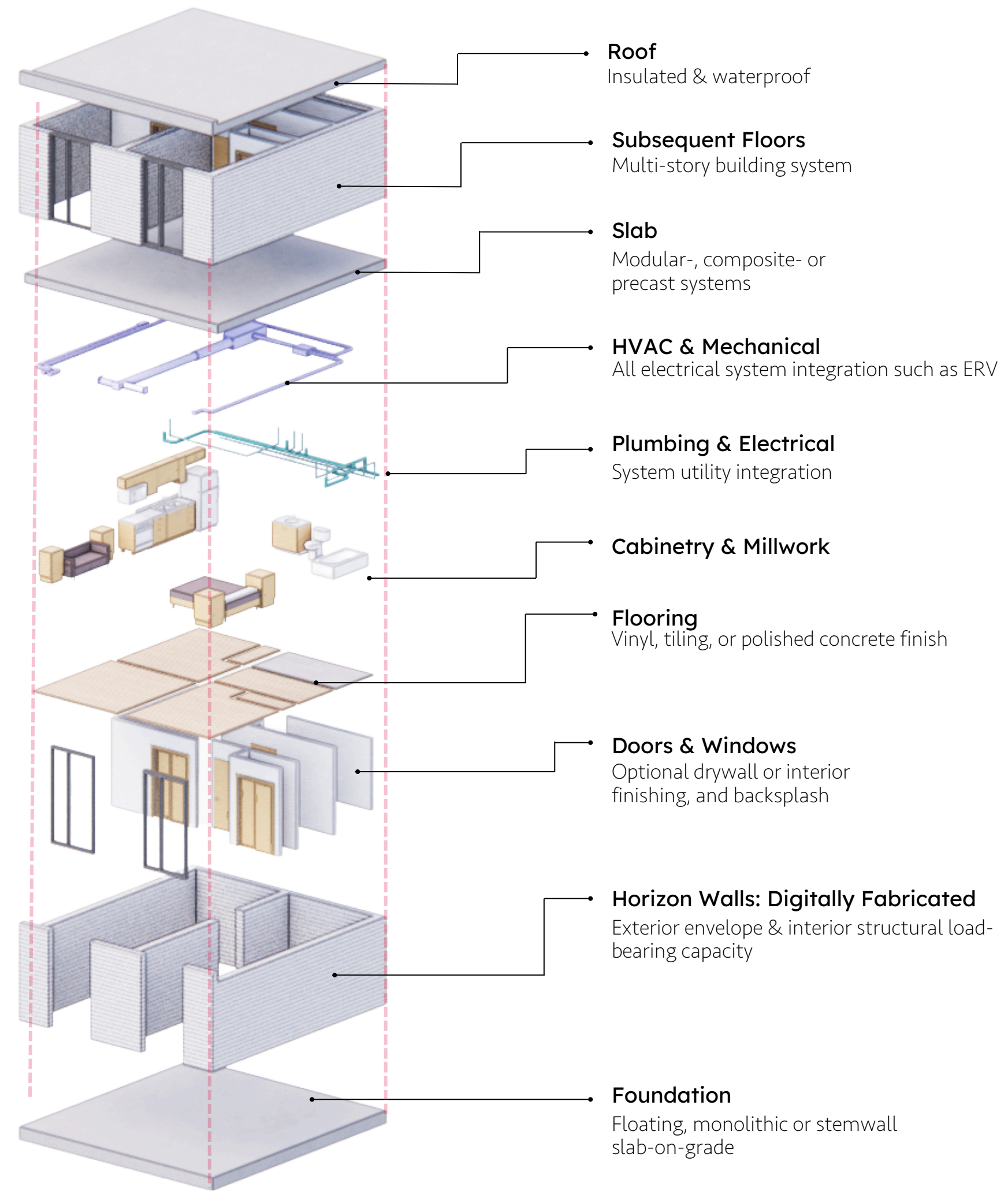








ROBOTIC CONSTRUCTION Building System





“The pace of innovation is accelerating—and the cost of standing still is higher than ever.”

— Ginni Rometty



Inquire
hello@horizonlegacy.com

More information
www.horizonlegacy.com

