

# Award

JOHNSON CHOU INC.

Creating A Narrative  
Through Architecture

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**LOCATION**  
5 Shoreham Drive, Toronto, Ontario

**OWNER/DEVELOPER**  
Toronto and Region Conservation Authority

**ARCHITECTS (JV)**  
ZAS Architects / Bucholz McEvoy Architects Ltd.

**CONSTRUCTION MANAGER**  
Eastern Construction Company

**STRUCTURAL CONSULTANT**  
RJC Engineers

**MECHANICAL CONSULTANT**  
Integral Group

**ELECTRICAL CONSULTANT**  
Mulvey & Banani

**LANDSCAPE ARCHITECT**  
Schollen & Company Inc.

**SUSTAINABILITY CONSULTANT**  
Green Reason Inc.

**TOTAL SIZE**  
8,100 square metres

**TOTAL COST**  
\$60 million

# TORONTO AND REGION CONSERVATION AUTHORITY HEADQUARTERS

by ROBIN BRUNET

**W**hen the Toronto and Region Conservation Authority (TRCA) decided it needed a new administrative headquarters to better accommodate and consolidate its growing 300-member staff, it didn't just set out to build a new facility – it wanted the new headquarters to be one of the most energy-efficient office buildings in North America.

Scheduled for completion early next year, the new TRCA administrative office building is a four-storey mass timber structure designed to achieve zero carbon status. It contains flexible and adaptive spaces, a high-performance envelope, an open loop geoechange system, and solar optimization for daylighting.

After the TRCA's board in 2016 agreed that the new LEED Platinum candidate facility would best be located on land owned by the authority, all six of TRCA's participating municipalities approved the project the following year, along with the allocation of \$60 million in new and existing capital funding. ZAS Architects and Bucholz McEvoy Architects Ltd. were retained in a joint venture to bring the project to life.

During the concept design phase it was determined that the headquarters would be an 8,100-square-metre mass timber building, formed as three narrow rectangular structures that converge at one end. Unlike other mass timber projects, the elevator and stair cores would also be made of timber instead of concrete, along with a complete wood-based exterior building façade.

Following Passivhaus principles, the architects created a climate-responsive envelope featuring more glass on the south side and less on the others, for optimal passive solar heat gain. The southern façade is optimally glazed and features operable exterior shading. Additionally, a secondary glazed preheat skin located in front of the shading was developed to heat the air before it entered the facility in cooler months. The other sides of the building have triple-glazed windows with fixed vertical fin shading.

The visual focal point of the new headquarters is a central atrium with triple-glazed skylights to bring as much natural light as possible inside; in addition to being an area of congregation, the atrium serves as a collection point for ventilation air, thanks to one of the project's key mechanical features that also serves as a visual point of interest.

Instead of a central fan room elsewhere in the building, the architects equipped the atrium with four solar chimneys and waterwalls, described as giant glass air ducts with MERV 13 filters on the top. Inside there are vertical steel mesh screens with water running down, filtered through reverse osmosis and UV filtration, tempered by the ground source heat pumps to be warm in winter and cool in summer. The air from the chimneys will be distributed throughout each of the building's storeys through raised floor plenums.

Jed Braithwaite, manager of major contracts in the project management office at TRCA, told media that mass

timber as the primary building material “has some challenges, but these are for the most part being met through a collaboration with the construction manager and mass timber trade.” He added that mass timber also reduces structural weight plus requires no additional finishing such as drywall.

The mass timber substantially reduces the embodied carbon in the building, supporting both the project's LEED Platinum target and goal of achieving Zero Carbon Building (ZCB) Design Certification, through the CAGBC as one of the original 16 pilot projects for the ZCB program, notes Alan Murphy, principal at Green Reason Inc.

Ground broke on the project in January of 2020, and Mike Adams, project manager at Eastern Construction Company, says, “It's been an extremely complicated build. Soil improvement had to be undertaken to support a slab-on-grade basement with a four-foot foundation wall, and this consisted of us drilling, pouring in crushed stone, and compressing the stone.”

Although the COVID lockdowns caused construction delays, the project managed to avoid other problems associated with the pandemic. “The mass timber came from Ontario and Europe and had been secured before the virus hit,” Adams says.

As of July, the glazing of the building was being installed and the exterior wall studs and sheathing wall were being prepped for Ontario White Cedar shingles. When the new administrative headquarters is completed



early next year, it will serve as “a living laboratory for developers, professionals, researchers, and students, as well as accommodate the future complement of 400 TRCA staff and provide development planning and permitting services for TRCA's regulated areas,” according to Braithwaite. **A**