JULY 2020

ARCHITECTURE | DESIGN | CONSTRUCTION

Award

GEC ARCHITECTURE

Problem Solvers

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PM #40065475

LOCATION
230 Milliken Boulevard, Scarborough, Ontario

OWNER/DEVELOPER
Toronto Transit Commission

ARCHITECT
Strasman Architects Inc.

DESIGN BUILD CONTRACTOR
Buttcon Eastern Joint Venture

STRUCTURAL CONSULTANT
RJC Engineers

MECHANICAL/ELECTRICAL/ CIVIL CONSULTANT
Morrison Hershfield Limited

DOOR SPECIALISTS
Albany Doors / Wilcox Door Service

TOTAL SIZE
312,100 square feet

TOTAL COST
$130 million

TTC MCNICOLL BUS GARAGE

by ROBIN BRUNET

Transit use in the Greater Toronto region is steadily growing, and bus fleets are growing to meet demand – but there are a limited amount of facilities for proper maintenance and storage.

That, in a nutshell, explains the design and development of Toronto Transit Commission's (TTC) McNicoll Bus Garage in north Scarborough, which is expected to not only provide relief for overloaded existing garages but also operational efficiencies and, by extension, improved customer experience.

The garage, designed by Strasman Architects Inc. and constructed by Buttcon Eastern Joint Venture under a design build delivery method, can maintain and store 250, 40-foot vehicles and new articulated buses. The project, which had been in the planning stages since 2013, is comprised of heated storage, two nightly service lanes each with two service bays, a special clean lane, maintenance garage, administrative offices, and support and ancillary areas.

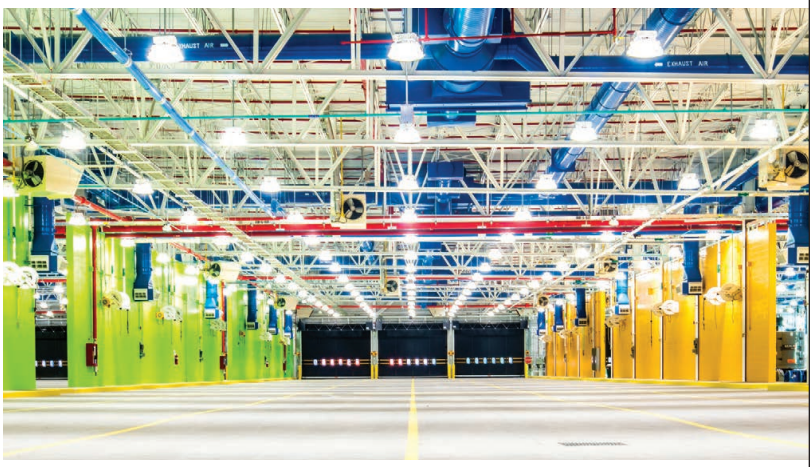
Built to exceed Toronto Green Standard, the garage also boasts a massive solar wall that will recapture heat through the winter months, and an especially large green roof.

TTC project manager Jason MacDonald points out that a great deal of time was spent creating a feasibility study and then undertaking community consultation in order to move the project forward. "This was our eighth bus garage, and, like the others, we wanted a facility that is a welcome part of the neighbourhood."

TTC's engineers determined how the greenfield site would be organised, and in 2017 they turned over their requirements to Shawn Strasman, principal at Strasman Architects, with whom they had collaborated many times in the past. "Shawn lost no time improving what had been laid out in order to better facilitate the smooth throughput of buses," says MacDonald.

He adds that the solutions were simple. "For example, Shawn rotated the orientation of some service bays for optimized bus manoeuvering. Also, we wanted natural light to penetrate the service areas – but skylights weren't feasible due to the volume of ceiling mounted hoists and other equipment, so his solution was vertical strip windows." Additionally, the canopy over the garage exit was extended to help mitigate the noise of the vehicles.

Another solution pertained to the bus facility's exterior design, which was driven largely by the SolarWall collector system from Conserval



PHOTOGRAPHY COURTESY STRASMAN ARCHITECTS INC.

PHOTOGRAPHY COURTESY STRASMAN ARCHITECTS INC.

Engineering Inc. "Initially this was a large black mass that nearby residents thought was unpleasant," says Strasman. "So we complemented it with a balance of strip windows and a red metal accent band and sculpted the form as it transitioned into the canopy at the south to create a continuous street edge that aligns with an adjacent senior's residence."

The wall's ability to achieve heat ventilation and reduce carbon emissions (an estimated 4,300 tons over the system's 40-year lifespan) was an additional benefit in increasing the sustainability of the garage, whose composition of precast panels, curtainwall glazing, and metal cladding was also used to help achieve TTC's goal of energy efficiency.

Strasman's overall design philosophy was to celebrate rather than conceal the garage's operations, and this resulted in strategically placed glazing to offer visual cues into the internal operations of the facility, and various bright colours throughout the maintenance areas. MacDonald remarks, "On the west frontage especially, the windows are at eye level and you can see deep inside the facility."

As for the green roof, at 100,000 square feet the TTC is believed to be one of the biggest in the country and definitely the largest in Toronto. "Plus it's a modular system," says MacDonald. "All the plants are in trays for easy removal during maintenance."

Construction was uneventful save for the preservation of an oak tree that had been planted by a local soldier upon his return from fighting abroad in World War One: his story was rendered on an acoustic feature wall adjacent to the seniors' home.

MacDonald says that "Covid-19 threw us a curve ball, but fortunately we were considered an essential project and kept going, and Button Eastern Joint Venture did a great job in maintaining site safety. They really came through in finishing the job on time."

As of July, the McNicoll Bus Garage was still in the commissioning stages, but MacDonald points out that managers had moved in and were thrilled with their new workplace. "They say the facility sets a new standard for bus garages in our city, and I would agree," he says. "Undoubtedly, this project will influence similar ones as transit continues to grow in Toronto." **A**