



CLAYTON COMMUNITY CENTRE

by ROBIN BRUNET

The Clayton Community Centre combines, through form and function, services for Surrey's Clayton Heights neighbourhood, including library, visual and performing arts, and recreation, in a 78,000-square-foot facility designed to achieve Passive House certification (the first such facility to achieve the designation in North America).

In terms of esthetics, Clayton Community Centre is jaw dropping. The team at HCMA Architecture + Design developed a building form that is essentially two stacked boxes, with the upper level providing overhang for the lower level to help control solar gain. The atrium pays homage to a nearby forest with a massive spiral staircase that can be interpreted as a tree trunk, plus a ceiling of honeycombed triangular glulam beams that wrap down the exterior walls, creating openings that angle across the building, reminiscent of branches. The extensive glazing, much of it triangular, is another abstract representation of arboreal elements and integrates the surrounding natural setting within the building.

The goal to integrate services was achieved by music and recording studios, a visual arts and woodworking studio, and a community performance hall branching off from a large central social space that also provides access to the library, a gymnasium, and a fitness centre. This is augmented by a community kitchen, community garden, and preschool and multipurpose space.

Andrew Goodbrand, project manager at EllisDon, says, "EllisDon, HCMA, and the City of Surrey had all worked together in the past, so while achieving Passive House requirements of this scale was a task, a great working relationship helped bring the centre to life."

Kelsey Swanson, community and recreation services manager,

Cloverdale, at City of Surrey, says the idea of a community centre for Clayton goes back seven years. "The land became available at a time when Clayton was developing quickly; at the same time, one of our libraries was planning to expand, so everything quickly evolved from there."

Liane Davison, culture manager at City of Surrey, adds, "Community input began almost immediately, and it became evident that the residents' appreciation for the surrounding forest would drive the building design."

Passive House objectives became a significant driver of the facility's form and layout early on, "and this resulted in a forensic examination of occupancy patterns and the proposed spaces and equipment," says Davison. "We even found ourselves determining how much energy a gym treadmill consumes."

It was learned that an average of over 650 people per hour using the facility would produce high internal heat gains, pushing up cooling loads. To reduce these loads, HCMA re-evaluated the thick building insulation layer typically prescribed for Passive House projects. Lowering the R-value of the opaque envelope to roughly 22 and the addition of a passive ventilation system combined with strategic solar shading brought the cooling loads into conformance with Passive House requirements.

Designing an entranceway that wouldn't result in excessive uncontrolled infiltration was another big challenge. The solution was a Passive House-certified door as the exterior entrance to provide the thermal performance, leading into a three-metre-long vestibule at the end of which is a large, airport-style revolving door for high occupant traffic.

Goodbrand says, "Product procurement to meet the Passive House standards was tough because North America has predominately had small



residential Passive House projects and few manufacturers could meet the standards of institutional construction. EllisDon, however, has great industry trade partners and contacts from our years of experience with sustainable energy projects and used them." In some cases local sources were tapped such as Blackcomb Glass of Whistler, which supplied German-made RAICO curtainwall framing.

Preconstruction began in early 2018, and Goodbrand describes the site conditions as "pretty good overall. There were a few soft soil areas, but we overcame that. We began construction by putting in new services, a side road, and ended the project by reinstating habitat consisting of building a pond."

As for construction of the centre itself, Goodbrand says, "The triangles, trapezoids, and other geometry of the building are unique and fulfilling to bring to life. The biggest challenge was the glulam roof structure: very intricate, two-way structure, but honestly, a lot of fun to create." Substantial completion was achieved in May of 2020.

Swanson echoes the sentiment of her colleagues by expressing her enthusiasm for the finished product. "With changing artwork and the evolution of other programs responsive

LOCATION
7155 - 187A Street, Surrey, B.C.

OWNER/DEVELOPER
City of Surrey

ARCHITECT
HCMA Architecture + Design

GENERAL CONTRACTOR
EllisDon Corporation

STRUCTURAL CONSULTANT
RJC Engineers

MECHANICAL CONSULTANT
Integral Group

ELECTRICAL CONSULTANT
AES Engineering

LANDSCAPE ARCHITECT
Hapa Collaborative

ELECTRICAL CONTRACTOR
Houle Electric

TOTAL SIZE
78,000 square feet

TOTAL COST
\$43.5 million

to residents' needs, the Clayton Community Centre will always be dynamic. Raised planter boxes are ready for planting in the community gardens, and we're looking forward to staging public events. Thanks to HCMA and talented builders, we have come as close as possible to developing a living, breathing facility – as well as an enormously efficient one." **A**