Schulich School of Business Expansion – York University

by **LAURA WALKER**

RENDERING COURTESY BAIRD SAMPSON NEUERT ARCHITECTS

Through the construction of the Rob and Cheryl McEwen Graduate Study & Research Building in Toronto, York University's Schulich School of Business is working to demonstrate how academic spaces can not only support the delivery of a pedagogy, but also stand as an example of the values and lessons that a school's curriculum strives to instil in its students.

While the impetus of the business school's latest building was driven by a rapid program growth, professor James McKellar of the Schulich School of Business says the building's distinctive design features will establish the structure as one of the "most environmentally sustainable and socially responsible academic buildings in Canada."

Among its groundbreaking characteristics, the building will be one of the first buildings in the country to utilize the principles of Thermally Active Building System design (TABS). "The new addition represents this cutting-edge sustainability – aiming to go beyond LEED Gold to make a major statement in terms of doing things very differently," says McKellar.

While the building is physically linked at the ground and basement levels to the existing Schulich building, the new building offers a unique design. "We wanted to ensure it didn't look like an addition," notes McKellar.

Baird Sampson Neuert Architects' Barry Sampson explains that the design was inspired by the building's role as a place for communication on economic, social, and environmental issues in the context of a modern, digital world. "The building concept grew out of a process of considering these three interests through diagramming using origami as the test medium. I started out thinking of thin shiny smartphones and how a building tower could be made similarly thin and iconic.

"However, the pliability of paper showed how the surface orientation could be altered by folding, aligning with the campus grid at ground level, and then twisting toward the sun for optimal solar orientation to achieve effective passive environmental design."

Stone, copper and trim are featured at the building's base in order to relate the new building to the existing school, while fibre cement panels are used to clad most of the upper portions of the building. "For energy performance, our chief interest was in achieving a higher than usual proportion of insulated opaque wall to glazed wall, while creating a greater appearance of glazing continuity, lightness and 'phenomenal transparency' than is typical in buildings with punched windows," says Sampson.

"The main fold on the outside of the building occurs where a three-storey central marketplace is located. By concentrating the triple-glazed curtain wall curtain wall here, the fold is emphasized and transparency is provided right through the building, revealing the activities of its social centre."

Entering into the building, extensive use of exposed concrete throughout the interior works to optimize the passive environmental performance of the building, absorbing solar energy, and lagging heat build-up or making it available for re-radiation in a more consistent manner, explains Sampson.

Other interior finish materials play off the concrete, including glass partitions, wood panel, honed stone tile, and stainless steel mesh and panel, all of which Sampson notes "are durable and wear well over time."

The ground floor offers instructional and presentation spaces for learning, interaction, teamwork, and collaboration, including one 90-seat and two 60-seat flat floor classrooms with flexible furniture, 10 breakout rooms and four seminar rooms. "Every room has natural light. You'll find yourself facing a courtyard, no matter which room you exit," says McKellar of the classrooms.

The building's three-storey marketplace features seating and collaboration areas, a café, concierge desk, and direct access to the outdoor courtyard. The marketplace has been designed to help encourage social interaction and reinforce a sense of community.

To further support the social aspect, transition spaces throughout the building do not act as typical corridors, but rather, provide functional spaces with movable furniture to accommodate a variety of collaborative academic activities.

The second and third floors are home to offices, as well as collaborative research and meeting spaces, serving the school's Centres of Excellence and research activities.

A feature staircase with a tapered triangular profile provides access to the upper two floors within the atrium area, while a 16.5-metre reception lounge link bridge constructed with post-tensioned concrete connects the west and east sides of the building at the third floor.

"This is one of the most unique elements of this building," says Blackwell Structural Engineers' David Vrljic of the link bridge. "The varying geometry makes this extremely unique, which also contributes to additional complexities associated with the design."

Praneal Magan of Crossey Engineering Ltd. explains that the lighting design was presented with challenges, not only as a result of the building's geometry, but also due the structure's open atrium and abundance of glass windows. "In many areas exposed concrete has been used, so we had to take into account how these fixtures would be mounted," adds Magan.

The electrical design for normal and emergency power are both fed from the existing adjacent building, and the entire building interior and exterior has been designed with LED lighting, including feature lighting for the prominent solar chimney.

"Controls vary from switches and occupancy sensors, to dimmer switches, GRAFIK eyes, and DMX controllers. Due to the majority of the building being designed with glass we decided to take advantage of this and provide daylight sensors to help reduce energy consumption," says Magan.

The structure utilizes active chilled slabs and radiant ceiling panels for cooling and hot water convectors and warmed slabs for heating. Further, the thermally-active building uses displacement ventilation in classrooms and seminar rooms instead of the traditional mixed air model.

The project team has used Building Information Modelling (BIM) throughout the building's development in order to achieve dual objectives of environmental sustainability and architectural design innovation. From the earliest stages of design, BIM was used to develop project massing and space planning in the context of site conditions, and has since been used for the building's ongoing optimization.

Native and drought-tolerant tree species create shading surrounding the building, in the courtyard, and on the building's roof, which has been designed to Toronto's Green Roof standards and includes stormwater irrigation.

"We are very proud of the way the interior spaces, as well as the exterior of the building reflect its purpose: to be an exemplary social place for students, professors, staff and external partners to meet and collaborate, and to be an exemplar of environmental performance in respect of their comfort and health, as well as minimization of its load on the natural environment," says Sampson. **A**

LOCATION
111 Ian Macdonald Boulevard, Toronto, Ontario

OWNER/DEVELOPER
Schulich School of Business – York University

ARCHITECT
Baird Sampson Neuert Architects

GENERAL CONTRACTOR
EllisDon Corporation

STRUCTURAL CONSULTANT
Blackwell Structural Engineers

MECHANICAL/ ELECTRICAL CONSULTANT
Crossey Engineering Ltd.

LANDSCAPE ARCHITECT
Plant Architect Inc.

TOTAL SIZE
67,000 square feet

TOTAL COST
$50 million