Transforming the Way People Build, Operate, Teach and Learn

Executive Summary

GEORGE BROWN COLLEGE

- **Industry**: Education
- **Location**: Toronto, Ontario
- **Faculty**: 562 full-time; 832 part-time; 600 continuing education instructors
- **Number of Employees**: 732 full-time support and administration; 811 part-time support and administration
- **Number of Students**: Approximately 64,336
- **Waterfront Campus**: 2,300 full-time students
- **Funding Partners**: Government of Canada, Province of Ontario, Waterfront Toronto

CHALLENGE

- Establish new approach to learning to reflect collaborative nature of healthcare delivery
- Meet inter-professional learning objectives by creating highly integrated, technology-responsive building
- Establish new approach to building and infrastructure development based on the Cisco/EllisDon joint venture philosophy of building intelligence into the Waterfront Campus

SOLUTION

- Intelligent converged networking capabilities bring people, building services, community assets and information and GBC applications together as single connected learning community
- Converge disparate building systems, including HVAC, lighting, communications and energy management, onto one high-speed building information network which can be accessed by smart devices
- Cisco Power over Ethernet switches; building-wide WiFi; Cisco IP telephony with Cisco Digital Signage

RESULTS

- 17 integrated sequences, improving building efficiency
- Plug-and-play classrooms facilitate group connectivity
- Collaborative health practices reinforced
- Health and wellness clinics serve as community hub

George Brown College's smart and connected waterfront campus ushers in new era of collaboration.

CHALLENGE

As early as 2003, George Brown College (GBC) in Toronto, Ontario, launched a vision to build a state-of-the-art facility to deliver an inter-professional health sciences program based on patient-centred, team-based care: an integrated approach that would bring professors, students and professionals from a variety of healthcare and community service disciplines together to learn "about, from and with" each other. It was a lofty goal, says Lorie Shekter-Wolfson, dean of Community Services and Health Sciences at GBC, but in line with the changing face of healthcare in Canada and around the world.

"Virtual teams are becoming the norm in healthcare, and we weren't teaching that," says Shekter-Wolfson, who is also assistant vice-president of Waterfront Campus Development. "Healthcare professionals, for the most part, are still trained and educated in silos. We felt if we were truly going to make a difference, we needed a building that would support collaborative learning from the outset."

The objective was to create a highly integrated, technology-responsive building to break down barriers between disciplines such as nursing, dental health, health and wellness, and health sciences management, by facilitating teamwork, providing opportunities for real-time interaction and eliminating labels. At the same time, the college aimed to find a construction company that understands an entirely different approach to building, embracing totally integrated building automation and innovative energy conservation strategies from the start.

"We needed to be able to cross-pollinate learning across different teaching and group work spaces, and we needed a common platform for building operations to facilitate both energy management and integrated educational programming," says Terry Comeau, GBC executive director, Waterfront Campus Development. "As much as we were working towards a world where healthcare and healthcare education are delivered in an integrated fashion, we were also looking to integrate operations such as lighting, climate control and room occupancy that had been independent systems in the past. It wasn't enough to have integration at the desk level; it was critical to have it building wide as well."

> "Each of our classrooms has become a plug-and-play multimedia environment that supports group work and connectivity. We now have an advanced platform that allows for online education, distance learning and the evolution of the virtual learning process."
>
> – **Terry Comeau**
> Executive director, Waterfront Campus Development
> George Brown College

To activate its integration program, GBC needed partners who were prepared to transcend traditional boundaries. The college required a highly flexible, high-speed network that could sustain high volumes of video traffic, allow for live connectivity and support the use of sophisticated high-fidelity mannequins in state-of-the-art simulation labs. More importantly, it was looking for a construction company and IT partners who were prepared to embrace collaboration from the start.

"Once we received government funding, we had 19 months to construct, equip and occupy our new health sciences campus," says Comeau, noting it was not a typical build-out program. "We needed to follow a highly accelerated, tightly integrated schedule. We weren't going to be working on a linear basis where IT moves in once construction is complete. We needed partners who could work on integrated delivery variables simultaneously."

SOLUTION

GBC found its collaboration partners in Cisco and EllisDon Corp., and in 2011 embarked on constructing a 380,000-square-foot waterfront campus as a Cisco Smart+Connected Communities™ (S+CC) building. Cisco® S+CC is the Cisco vision for using intelligent networking capabilities to weave together people, services, community assets and information into a single connected community. It also represents a new way of thinking about how buildings are designed, constructed and managed.

"It wasn't about the network. It wasn't about integration. It wasn't about the new building. It was all about learning the college's business," says Stephen Foster, director of information, communication and technology (ICT) at EllisDon. "By coming together early in the process and understanding the value proposition of interprofessional learning, we were able to evaluate and determine how we could use technology to drive that vision, knowing we could convert their educational and business objectives to a technology solution."

From the start, the design and construction of the waterfront campus involved a collaborative team effort with representatives from the institution (GBC), the developer (EllisDon), the technology provider (Cisco) and other industry suppliers (including Honeywell International Inc. and Fifth Light Technology) working together simultaneously. "The process mimicked where we were trying to go with our educational objectives and demonstrated why interprofessional collaboration is key to success," says Shekter-Wolfson.

The campus leverages Cisco Connected Real Estate solutions to converge disparate systems over a single building information network. Advanced technology installed includes: real-time building automation powered by Cisco Power over Ethernet switches and supported by motion sensors; real-time audio and video capabilities supported by a Crestron AV system; building-wide Wi-Fi; Cisco IP telephony and Cisco Digital Signage.

To ensure the underlying building infrastructure could support one converged network, EllisDon and Cisco worked in tandem. EllisDon's clear understanding of the network equipment, building automation systems, and end-user technology being implemented to help ensure the room layouts and commissioning schedules, were optimal. EllisDon also required a dust-free environment to house the core of the network during construction so it could be up and running well before the building was complete.

"Traditionally EllisDon finishes a building, walks away and then IT comes in. Now we're expected to get the IT in place so when we finish a building it includes the IT services," says Foster. "We were initially forced to build differently in order to meet the needs of this new intelligent building expectation, but now it's become part of our DNA."

RESULTS

In September 2012, GBC opened the doors to a state-of-the art health sciences campus at Queen's Quay on the shore of Lake Ontario in Toronto, accommodating 3500 student spaces. Considered one of the city's most architecturally striking learning environments, the eight-storey facility represents a new standard for healthcare graduates entering the workforce.

"Everybody knew we had to do things differently, but I don't think anyone envisioned it would be such a meteoric leap," says Shekter-Wolfson. "The students are blown away."

From an educational perspective, the campus delivers several features aimed at fostering collaborative learning, such as: non-bookable spaces called learning landscapes, designed to facilitate interdisciplinary group work and impromptu meetings; lecture rooms outfitted with rotating seats so students can face each other; simulation suites designed to emulate home care, operating room and critical care settings using lifelike mannequins and, WAVE, a group of Wellness, Applied research and Visionary Education clinics where faculty and students work together to offer services to the community. Wi-Fi capability extends throughout the building as well as to a nearby park, and 50 well-placed multimedia screens display both general information and emergency notifications.

"Each of our classrooms has become a plug-and-play multimedia environment that supports group work and connectivity," says Comeau. "We now have an advanced platform that allows for online education, distance learning and the evolution of the virtual learning process."

For example, professors teaching dental procedures have the ability to broadcast their movements using live imaging, so students working at their desks can easily follow along. Similarly, when instructors use a simulation suite to teach what to do in the event of cardiac arrest on the operating table, the demonstration can be broadcast live to other classrooms where additional students and professors are watching.

"Even the nomenclature of our new labs and clinics is inclusive to encourage all professions to use these spaces," says Shekter-Wolfson. "For example, instead of calling our home apartment the 'PSW' apartment, which is a common name in many colleges, we have chosen to call it Health eHome, or the Active Living Studio instead of the Fitness Assessment Lab. You won't see any of the labs defined by a profession. Rather they're called simulation centres. It's more about what you're doing in there, not who is doing it."

CISCO

From a complete convergence perspective, virtually every building system, including: mechanical controls for HVAC, blinds, electrical controls for lighting, energy management by way of smart utility meters, access, communications and security systems, is controlled from anywhere, with any smart device. Sophisticated control systems, for example, help enable classroom lighting, ventilation, temperature and audiovisual components to be managed by individuals by way of the touch panel Crestron AV system. Occupancy sensors detect when a classroom is empty and automatically enter conservation mode. Other energy-saving features include low-flow toilets, workstation-oriented lighting to avoid high levels of general illumination, fan coil heating and cooling in place of a central boiler, and a grey water cistern.

"We believe we're going to be driving energy costs down to a fraction of what they were prior," says Comeau. "Our goal is to reach LEED gold certification, not to just design a certain reduction in energy but to actually achieve it, prove it and sustain elevated levels of building performance."

NEXT STEPS

GBC's new S+CC campus is a flexible and adaptable space that can be easily controlled and customized to meet changing needs over time. The more faculty, students and staff adjust to the available intelligent capabilities, the more the evolution towards interprofessional learning is unfolding.

"This has been a real win, and people are just now starting to grasp what the building offers as a tool for learning," says Comeau.

The college also plans to enhance its distance learning capabilities through the use of advanced videoconferencing tools, connecting to other sophisticated health sciences programs through a high-speed research and development network. It will also be making changes to its curriculum to reflect the opportunities for interprofessional learning that are now possible, including new senior care strategies geared towards learning how to support patients in their homes and opportunities to compare and contrast between health disciplines.

"Both nursing and dental hygiene teach health assessments. Wouldn't it be great for dental to hear the kinds of questions nursing asks and vice versa?" says Shekter-Wolfson. "The space is an enabler and the technology is an enabler. Now the content of the curriculum has to change to support this and that's when the 'aha moments' will start coming."

FOR MORE INFORMATION

For more about Cisco Smart+Connected Communities, visit: http://www.cisco.com/CA/scc_en

For more about George Brown College, visit: http://www.georgebrown.ca/

For more about EllisDon Corp., visit: http://www.ellisdon.com/