

# Durham College Centre for Collaborative Education

LEED Gold project designed as a catalyst for future development



1. The main entrance. The building optimizes passive design strategies through an efficient window-to-wall and window placement in combination with its narrow footprint.

By Oliver Beck and Daniel Ling

**The genesis for Centre for Collaborative Education (CFCE) came out of a College resolution to divest of the original 1970s infrastructure that no longer supported the progressive values of the College. The original building on site was no longer sustainable, both pedagogically and from the perspective of energy use.**

Like many buildings of the era, it was remarkably leaky with no shortage of asbestos and comprised of a maze-like cellular plan with little opportunity to create alternative teaching and learning settings. The building became a hindrance to the College's pre-scient mandate to support dynamism and collaboration in teaching and learning settings.

The new building reads like an index of progressive, flexible spaces aimed at enhancing a more transactional approach to learning and community – as well as a desire to model environmental stewardship. Importantly, the kind of imbedded programmatic flexibility in the CFCE has inherent aspects of sustainability.

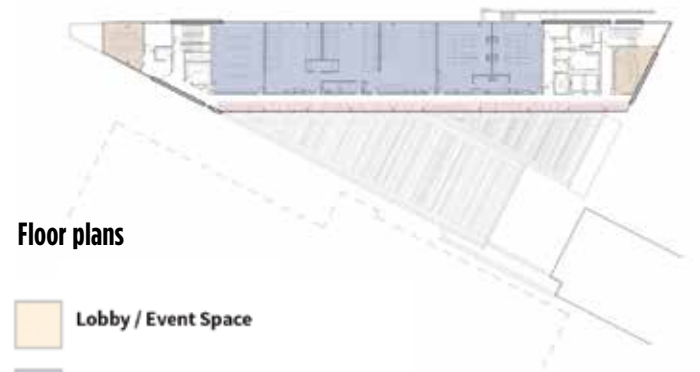




Ground floor

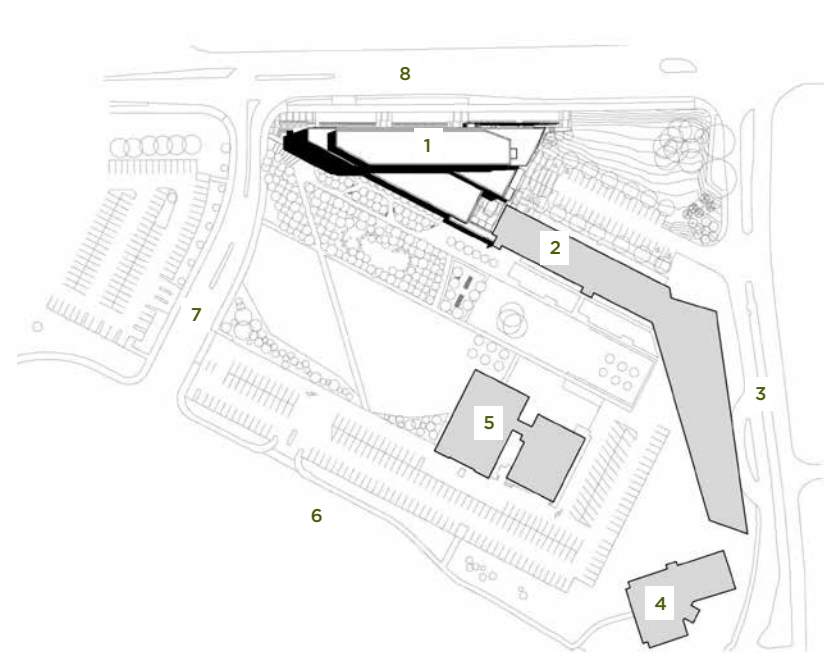


Second floor



Floor plans

- Lobby / Event Space
- Classrooms / Labs
- Courtyard
- Global Classroom
- First Peoples Indigenous Centre
- Cafe
- Incubation / Co-working Space
- Spa
- Informal Study / Lounge
- Seminar / Meeting Space



**Site plan**

1. CFCE
2. Student services building
3. Commencement circle
4. Student centre
5. J-Wing
6. Founders Drive
7. Founders Gate
8. Simcoe Street North

2. As the gateway to the campus and forming a new quad, the CFCE reinforces the College's aspirations for a sustainable, pedestrian-oriented campus.

3. Replacing an existing 50-year-old one-storey building, CFCE establishes a new face for Durham College along a busy City thoroughfare. It is within 400m of eight transit stops for two municipal and two regional transportation routes accessed by over 200 daily riders.



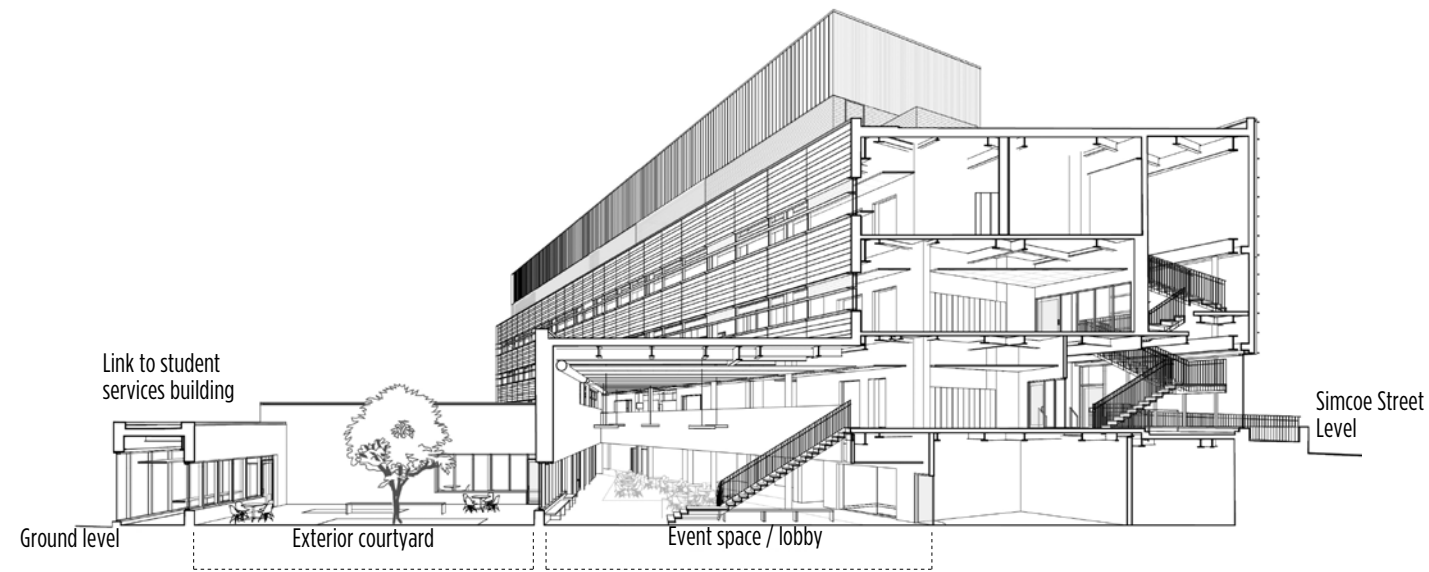
The CFCE's program-driven design accepts that pedagogy and academic content are dynamic. This recognition has created a facility that should require few modifications over time – even when content and teaching styles evolve.

The CFCE occupies a prominent corner of the campus and helps to define a new quadrangle. Originally the building was to attach to the adjacent Student Centre, however the final design minimized demolition by creating a small shared courtyard.

The north entrance and courtyard connect to the new greenspace and promote outdoor pedestrian and cycling traffic further into the campus. This pedestrian-oriented development is one of the first under the campus' Master Plan which prioritizes pedestrian links.

The light-filled building supports a wide variety of programs and student needs with active learning classrooms and specialized components such as Patient-Care Laboratories, a Spa Suite and the Entrepreneurship Centre that engages industry and facilitates market innovations. The First Peoples Indigenous Centre and Diversity Services offer purpose-designed spaces that accommodate cultural practices in an inclusive environment. The Centre for Success, Global Classroom and a variety of shared teaching rooms, maker spaces, a café, and amenity areas complement all these components.





**Building section**

**PROJECT CREDITS**

**ARCHITECTS** Montgomery Sisam Architects in joint venture with Architecture Counsel  
**OWNER/DEVELOPER** Durham College  
**GENERAL CONTRACTOR** Eastern Construction  
**LANDSCAPE ARCHITECT** PMA Landscape Architects

**CIVIL ENGINEER** WSP | MMM Group  
**MECHANICAL AND ELECTRICAL ENGINEER** WSP | MMM Group  
**STRUCTURAL ENGINEER** RJC Engineers  
**PHOTOS** Tom Arban

The Entrepreneurship Centre, the Centre for Success, the First Peoples Indigenous Centre and Diversity Services, the Global Classroom and a variety of shared teaching rooms, maker spaces, a café, and amenity areas are also co-located.

The new CFCE takes full advantage of its constrained site with a highly agile design. Corridors are purposefully designed to accommodate informal study and social spaces. The entry lounge and café are co-located to create a vibrant social heart for the facility. Floor plate dimension and structural bay sizes allow for flexibility in planning and future adaptability.

The composition of solid and void at the south elevation provides significant daylighting in the public areas and feature stair while offering protection for quiet and informal study areas. The east elevation is opaque at the core with strip windows on the second and third floor academic areas to facilitate daylighting.

The distinctive patterning of the elevations and the usage of selective areas for large expanses of glazing give the building an open and transparent feel, while maintaining an optimal 40% window-to-wall ratio. This contributes to a projected annual energy consumption of 129.3 KWhr/m. An indoor air quality management plan was employed in the construction phase to remove dust, dirt, and debris from the building.

4. The brightly lit Global Commons opens into a café with ample movable seating to invite students to gather and socialize. Adjacent to the Global Commons, a 4.5 m x 3.5 m Biofilter Green Wall provides students with a place to rest and draw energy from nature.



CFCE meets the minimum Environmental Tobacco Smoke Control requirements, and a Biofilter Green Wall consumes air contaminants through plant root microbes. The design also takes steps to reduce light pollution by employing controls to reduce the input power of non-emergency interior lighting with direct line of sight to outdoors by 50% between 11pm and 5am.

Vegetated roofs are water efficient and use drought-tolerant plant species which help reduce the heat island effect without irrigation resulting in a 100% reduction in outdoor potable water use. The installation of low-flow and low-flush water consuming fixtures results in a 36% reduction in indoor potable water use.

The CFCE is the first LEED certified building at Durham College's Oshawa campus. The project achieved full points in Optimized Energy Performance, and is designed to an energy intensity index of 129.3 kWhr/m<sup>2</sup>/year. A solar photovoltaic system provides 25,375 kWh/year which represents 5% of the annual building energy demand.

A high-performing mag-bearing chiller, condensing boilers, VFD on pumps, heat-recovery, and efficient lighting and controls contribute to about 57% energy savings when compared to MNECB 1997.

The use of limestone, white architectural block, and wood soffit with a rich copper alloy panel system creates a dynamic expression while also keeping the façade sympathetic to the existing campus context. The copper alloy panels will darken with time to a bronze finish. All waste during construction was stored on-site to ensure that 100% of recyclable materials and organics were diverted from the landfill. The concrete used for the slab on grade, elevator and stair core is made up of 25% recycled material, and salvaged stone from the old Simcoe building is implemented as a feature.

Low-emitting materials, which are UL Environment, EcoLogo, and Green Seal certified and fall below the maximum allowable VOC emissions under California Code of Regulations, were used during construction to support the College's Green Cleaning Policy.

By achieving LEED Gold certification the CFCE surpassed the college's LEED Silver Certification target while staying on budget. Creating a building that has achieved such a high sustainability standard has also improved the knowledge base for their facilities team and raised the bar for future development.

**Oliver Beck, OAA is a principal at Architecture Counsel. Daniel Ling is a director and principal at Montgomery Sisam Architects.**

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