



HUMBER
Office of Sustainability



2019-2020

IEMP ANNUAL PROGRESS REPORT

PURPOSE

In an effort to limit the impacts of climate change, [Humber's Integrated Energy Master Plan \(IEMP\)](#) was developed to meet significant water, energy efficiency and greenhouse gas reduction goals by 2034.

GOALS



Reduce energy use per square foot by

50%



Reduce **absolute** greenhouse gas emissions by

30%

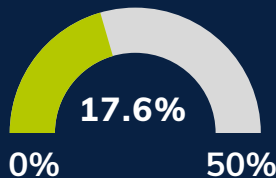


Reduce water use per student by

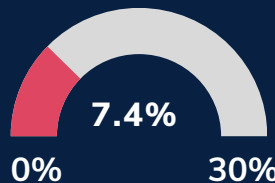
50%

PROGRESS

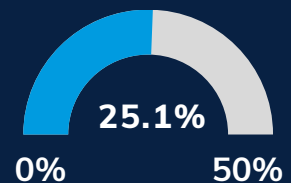
Energy



GHG



Water



FINANCIAL SAVINGS



This year, Humber College saved

\$1,533,000

in utility costs

Since 2015 Humber College has saved over

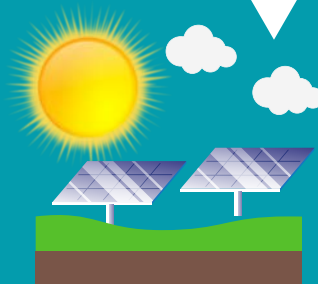
\$4,396,000



RENEWABLES

600,000 kWh

Solar Generation this Year



This is equivalent to the electricity used by **50** homes



NOTABLE PROJECTS

Passive House Building NX

Building NX is the largest non-residential Passive House certified building in Canada. The building uses 70% less energy post-retrofit and achieved a 90% reduction in GHG emissions. The building features a significant improvement to the building envelope, where minimal heating is lost even on the coldest days in Toronto. A Variable Refrigerant Flow (VRF) heat recovery system is used to recover and transfer heat between zones to further reduce heating energy.



Parking Garage Solar

A 700 KW-DC solar installation on the 1000 car parking structure generates enough renewable energy to offset the Barrett Centre for Technology Innovation's annual energy use.



Pneumatics to DDC Conversion Phase 1

Conversion of existing building systems to direct digital controls (DDC) was completed to enable more precision control over the buildings' operations. The conversion allows for increased occupant comfort, faster equipment response time, and allows for more detailed control sequences for energy savings.



Other Notable Projects

- North Campus Building N – solar PV installation
- North Campus Building E and J – lighting retrofit
- North Campus Building S and F (3rd and 4th floor) – retro-commissioning
- Lakeshore Campus Building L and R – retro-commissioning
- Lakeshore Campus Building E – MAU replacement, including ventilation heat recovery

ACADEMIC ENGAGEMENT

NX Student Design Team

A multi-disciplinary team of students designed an energy retrofit for Building NX at North Campus. The teams worked with industry professionals and researched advanced solutions for sustainable building design and construction. Throughout the process, they received feedback about their design choices from industry leaders such as B+H Architects, Morrison Hershfield, and Humber's Capital Development & Facilities Management team. This collaborative project provided an opportunity for students to experience real-world challenges, develop their professional skills, and network with industry professionals.

NX Walkthrough Energy Audit

The Sustainable Energy and Building Technology (SEBT) students conducted a walkthrough energy audit during the construction of Building NX. Students were tasked with analyzing energy flows and identifying energy-saving opportunities for their audit report. This project provided students with the opportunity to consider the environmental impact of energy use and possible solutions that also maintain or improve occupancy health, safety and comfort.

