

# Preparing future graduates to contribute to the environmental performance of sustainable building and energy systems

*This article is about a four-minute read.*

Kerry Johnston, program manager, explains that the foundation of [Humber's Sustainable Energy and Building Technology program](#) focuses on two large environmental impacts: building systems and energy systems.

**Kerry's goal is to prepare students of the program to contribute to the sustainable impact and environmental performance of the building and energy systems in local and global communities. Kerry believes that the best way to improve sustainable outcomes in the future is to transform systems that have the largest [greenhouse gas](#) (GHG) impacts.**

Students of the program are encouraged to think critically about society's fundamental needs (and wants) for survival. From thinking about the energy required to create municipal water systems to the distance food has travelled to arrive in local stores.

**Analyzing systems that are often forgotten or taken for granted in everyday living, is the reason students are able to participate in the evolutionary thinking of buildings. Thinking of buildings as consumers.**

Historically, buildings have always consumed energy and water and expelled wastes. "If by design we say, 'okay, let's change that model of thinking,' [we can] potentially design [Net Positive](#) buildings in energy, water and food," explains Kerry. Acknowledging that not every building is going to be able to achieve Net Positive, there is always opportunity to work towards a portion of the standards.

"All the commercial and institutional buildings that have flat roof spaces are prime candidates for urban agriculture or energy production," says Kerry. "If you think about the number of kilometers food travels, versus the distance it would travel if grown on the roof of a building, there would be more vertical component than horizontal, with a significant impact on our food, energy and water consumption."

**Kerry's students are currently working on an exciting, applied research project, in partnership with an individual who is transforming a home in Toronto to be a [Passive House](#) (a strict energy performance standard originated in Germany, adopted in North America).**

*Article continued on the next page.*

The goal of this project is to model how the energy and environmental performance of a building can certainly improve and create new living spaces in an urbanized area. This project will take a single-family, semi-detached home and create three living spaces that are energy efficient.

**“The program has provided me the opportunity to work with great students who have had considerable success in the industry,” says Kerry. “There are millions of kilowatt hours (kWh) and in cubic meters of natural gas that have been saved by energy efficiency and conservation measures that graduates of our program have implemented.”**

"The students and graduates are what drive my desire to stay at Humber," explains Kerry as he notes the importance of continuing to integrate sustainability into the program.

**Kerry expresses his gratitude for mature, motivated students and graduates he’s worked with, “Our program now has 10 graduating classes, and of those [graduates], there have been four President Medalists or Board of Governor Award winners.”**

Kerry credits the attraction and understanding of sustainability as a factor that improves the quality of the students’ experiential learning and ability to apply critical systems thinking practices. These driven students graduate with successful careers ahead.



**Above:** Building NX, Passive House certified



**Above:** Solar panels and green roof of the LRC



**Above:** BCTI, Net-zero Building