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Urban Research in Transit

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Sustainable living is often looked at as an addition to our lives — more work, extra costs, and oftentimes a hassle. When we — especially students — live with convenience and efficiency, the idea of doing something extra that only has a minuscule effect on the environment often seems to be more work than it needs to be. Recently, researchers and activists have been working together to incorporate sustainable living into our day to day activities. For instance, recycling bins are just as convenient as garbage cans, and duplex printing is not just available, but the default, in most places on campus. The bus pass on our Watcards is not only convenient, but also encourages students to get in the habit of using public transit. Moving forward on campus, Waterloo has a number of initiatives that are researching and designing sustainable communities. AHS and ES are working together on the healthy community initiative. As well architecture masters student Chris Black has created his thesis around designing and building sustainable cities.

The reality is that more people live in cities than ever before. In 1900, 13 per cent of people lived in urban areas, this number has increased to 49 per cent in 2005. According to the UN, as urbanization is expected to continue, it is projected that in 2030 the urban population will be 60 per cent of the world's population. These statistics seem to indicate that as we continue to migrate to urban centers, it will be impossible to live sustainably unless we design and adapt to new ways of life. An interesting fact that Black mentioned during the interview is that 45 per cent of greenhouse gas emissions are due to the built environment.

Black, in the first term of his M.Arch, has designed his research to study the connectivity of urban environments, making transit more efficient and accessible, and the appropriate density of a city. In his view, sustainability is more than environmental; in order for a city to be sustainable it must be economically and socially sustainable as well as ecologically. Public transit is a large part of the future of a sustainable city, and as suburbs are disconnected and become separated communities, public transit is neither accessible nor efficient. Urban sprawl and the current density of population in suburbs is detrimental to efficient and accessible bus systems. His goal of reconnecting the city into one large community would allow for designing the city around transit. The idea of reconnecting the communities would also help eliminate the separation of economic classes and provide a more economic and social sustainability.

As it stands, Black sees taking the bus as a utilitarian effort, and that the current system of public transit does not make riding the bus enjoyable. His goal is to see a bus trip in the city as a pleasant experience. In the future, bus shelters could be warmer in the winter, a place to display public art, make them somewhere you could meet someone. Using the example of Curitiba, Brazil, he outlined his goal for bus systems in North America. With thoughtful city planning and careful consideration for the future, the bus system in Curitiba is everything a city planner could hope for in a city. Communities are self-sufficient, bus routes run quickly, the shelters protect people from the weather, and are set up to serve clients with disabilities. Because of this, 85 per cent of the population of the city uses public transit.

As well as doing his masters in sustainable communities, Black is also involved in the Solar Decathlon as a graduate level research elective. The Solar Decathlon is a competition put on by the United States Department of Energy, that challenges 20 university and college teams to build a house that runs solely on energy from the sun. Running biennially, the first Solar Decathlon ran in 2002; Waterloo Architecture has entered the competition as "Team North" for the fourth competition to run in 2009.

Black's research in this project involves again studying the community connection — once you get the house functioning as a home and a functional piece of its landscape, how does it function in a community of similar designs and houses? Does it still function as efficiently, and how will the community develop as a set of sustainable houses? Making a house sustainable means that a person could live functionally off the grid. Building the houses for a reasonable price, guaranteeing that there's not a loss of money from owning and operating, in order to make it economically sustainable.

In the Solar Decathlon competition there is the main research that develops the house for living and for competition and peripheral research for the school and for the sake of knowledge and passion. The project itself has been ongoing since January 24, 2008 when UW Architecture and its partners (Ryerson University and Simon Fraser University's School of Interactive Arts and Technology) were accepted into the program, as it will continue going after the grad elective ends.

The core team for the Solar Decathlon competition from Waterloo Architecture include Andrew Haydon and Lauren Bernhyrd, both grad students, and are lead by professors from the school of architecture and engineering, which includes Geoff Thun and Kathy Velikov.