

The CSSBI and University of Waterloo Pursue Carbon Neutrality in Steel Building Systems



By the Canadian Sheet Steel Building Institute

The Canadian Sheet Steel Building Institute (CSSBI) recently joined forces with the University of Waterloo's School of Architecture and Department of Civil Engineering to develop a carbon neutral steel building system (CN-SBS).

Statistics show the built up environment, including commercial/industrial buildings and homes, collectively represents one of the single largest sources of greenhouse gases in North America. While builders are achieving greener, more sustainable designs and pursuing certification programs, these efforts are not enough. The CSSBI and the University of Waterloo have created a Carbon Neutral Steel Building System (CN-SBS) Project Team to explore the aspects of design and construction required to achieve carbon neutrality.

Leading the project as architectural consultant is Professor Terri Meyer Boake, LEED® AP, Associate Director of the School of Architecture at the University of Waterloo.

"This CN-SBS project is in response to the growing percentages of greenhouse gases and the mounting dilemma of global warming," says Professor Boake.

"We want to create and disseminate the resources and tools needed to integrate carbon neutral and zero-energy design into professional architecture programs and practice," Boake says.

Professor Lei Xu, Associate Director of the Canadian Cold-Formed Steel Research Group, Department of Civil Engineering at the University of Waterloo, is also working with Professor Boake as the project's structural engineering consultant. Both professors

are joined by the CSSBI General Manager, Steven R. Fox, PhD, P.Eng., who represents CSSBI members, many of whom are SBS manufacturers.

"Steel, as a construction material, has many environmental benefits already realized in SBS buildings around the world," says Dr. Fox.

"We're trying to help the Canadian industry move beyond green. This CN-SBS project should create and collect data that building designers need to push our building infrastructures toward carbon neutrality. This whole process is only the beginning."

The CN-SBS Project Team will evaluate three SBS building projects in terms of sustainable design and energy use using a variety of existing green building protocols. The project will propose new approaches for using steel, determining how Steel Building Systems can improve the energy efficiency of a building while decreasing its overall carbon footprint. The team will use a retail building of approximately 600 square metres (6,458 square feet), which represents a large segment of the built environment. Specifically, the three building methods that will be explored and evaluated include a comparison between a typical steel building system and a heavy timber framed building; completing the schematic design of a carbon neutral retail building with a steel building system; and adaptive re-use of an existing building using steel products as the primary structural/architectural materials.

The CN-SBS project will carry through into 2010. A website dedicated to this project has been launched at www.cssbi.ca/cn-sbs to showcase the project scope, adding project details and updates until the final results are released.

