

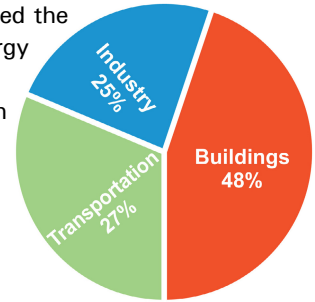


# Climate Change and Architecture



## DID YOU KNOW THAT **BUILDINGS** ACCOUNT FOR NEARLY ONE-HALF OF ALL GREENHOUSE GAS EMISSIONS IN CANADA?

Many Canadians and many levels of government have overlooked the fact that buildings are the biggest source of emissions and energy consumption in Canada and around the globe. Buildings and their construction consume more energy than the transportation sector. The design, construction and operation of buildings are the main sources of demand for energy and materials – both produce greenhouse gases. The Royal Architectural Institute of Canada is actively promoting the drastic reduction in greenhouse gas emissions from buildings and the need to reduce our dependency on fossil fuels.

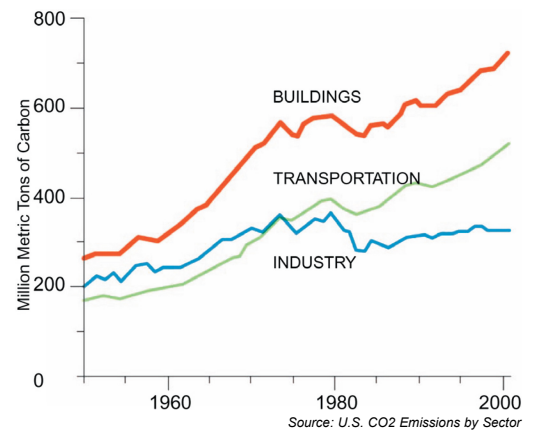


**The biggest source of energy consumption and emissions in Canada and around the world is buildings**

Energy consumption is projected to increase by 37% and greenhouse gases by 36% over the next twenty years in North America alone, and global energy consumption is projected to increase by 54% or 230 quadrillion BTUs over this same period.

## GREENHOUSE GAS EMISSIONS FROM BUILDINGS ARE INCREASING DRAMATICALLY

There is more than \$30 billion worth of building construction "on the drawing boards" in Architects' offices as of January 2007 and these buildings will have a lifespan of at least 50 to 100 years. These very buildings that are in the design stages will consume energy and produce greenhouse gases. These more than 500,000 new buildings will not only consume electricity from central power plants, but they will also burn fuel oil, natural gas or liquid propane in boilers, furnaces and hot water heaters. Most of Canada's future energy requirements are required to operate buildings. The building sector can and must do better. Design and technology are available to create more energy efficient buildings.



**The Design and Construction Sector – responsible for the greatest percentage (more than 12%) of GDP in Canada – is the major source of demand for energy and materials that produce greenhouse gases and this Sector could fuel Canada's contribution to faster climate change.**



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## HOW TO CURB GREENHOUSE GAS EMISSIONS

*"Scientists tell us that in order to avoid dangerous climate change we must keep global warming under 2° C above pre-industrial levels (we are currently at 0.7° C above pre-industrial levels)."*

Architects around North America and the world are proposing the following to avoid exceeding this threshold:

- Incorporating sustainable building design and resource conservation to achieve a **minimum 50% reduction** from the current level of consumption of fossil fuels used to construct and operate **new and renovated buildings by the year 2010**;
- Incorporate further reductions in fossil fuel consumption by 10% or more in each of the following five-year intervals so the cumulative reduction from today's baseline is:

- 60% in 2010
- 70% in 2015
- 80% in 2020
- 90% in 2025
- Carbon Neutral** by 2030

*Here, Carbon Neutral means the construction and operation of buildings will no longer require the consumption of fossil fuel energy or the emission of greenhouse gases.*

The reductions can only be achieved by:

- Incorporating building performance standards in building codes and other standards for private sector buildings and structures;
- Creating government mandates that all federal, provincial and municipal buildings meet energy efficiency targets.

**Architects know how to design buildings that operate with less than one half the energy of the average Building in Canada at little or no additional costs**

Incentive-based measures are needed by all levels of government to effect immediate reductions in greenhouse gas emissions, while longer-term regulatory measures are put into place.

Architects **can** design buildings to operate with far less energy than the typical Canadian building at little or no additional costs. This can be accomplished through proper siting, building form, glass properties and locations, material selection and incorporating natural daylighting, heating, cooling and ventilation.

By the year 2035 nearly three quarters of Canada's buildings will be new or renovated and this affords a great opportunity for Architects and the Design and Construction sector to be leaders in addressing greenhouse gas emissions.

**By the year 2035, nearly three quarters of all buildings in Canada will be new or renovated**

*We need the support of all levels of government!*

**FOR MORE INFORMATION:** [www.raic.org](http://www.raic.org) | [www.architecture2030.org](http://www.architecture2030.org)