

Buildings account for 54 per cent of Vancouver's greenhouse gas emissions, making them a good target for energy efficiency improvements. The City has created several programs promoting efficiency related to design construction, and daily operation.

Green Buildings

BUILDING TO COOPERATE WITH NATURE

Vancouver aims to become the world's greenest city, and that means improving the most visible part of the city's fabric, its buildings.

PASSIVE DESIGN SAVES ENERGY

The Passive Design Toolkits, published in 2009 as part of the City's drive to make Vancouver the world's greenest city, detail ways to reduce energy use in new buildings. Passive design relies on natural air movement and heat and light from the sun, using artificial heating, light and air conditioning only as a backup.

The toolkits provide best practices for passive design elements such as layout, orientation, insulation, landscaping and ventilation. They help designers and developers move toward a new, higher standard of energy efficiency without sacrificing thermal comfort. The City is leading by example, incorporating passive design elements into all new buildings and major renovations.



GREEN BUILDING AUDIO TOURS

To share Vancouver's green building successes with the public, the City produces "audio tours" that tell the story of green buildings around the city. Signs at green buildings indicate that an audio tour is available, providing a phone number and pass-code. Passers-by can use mobile phones to access a three-minute "tour" of the building, narrated by the building's architect or a design team member. Audio tours are available at 604.673.8150 or at vancouver.ca/sustainability.

WATER WISE

The City's Water Wise Landscape Guidelines help developers and homeowners create urban landscapes that use less water and protect aquatic ecosystems. As Vancouver grows, runoff from impervious surfaces overloads storm sewers, and increasing fertilizer and herbicide contamination threatens the environment. To counter these problems, the guidelines advance ecologically-inspired designs and list native plants that require less water and chemical support.



CANADA'S FIRST NET ZERO MULTI-UNIT RESIDENTIAL BUILDING

As part of the Olympic Village, the City built Canada's first residential multi-unit Net Zero Building – one that generates as much energy as it uses. The designers cut energy consumption to a fraction of a conventional building's using solar access and shading, natural cross-ventilation, triple-glazed windows and excellent insulation. Energy meters in each suite encourage further reductions by showing residents how much energy they are using and a heat recovery system transfers waste heat from an adjoining grocery store for space heating. Finally, two rooftop solar installations, 480 m² in total, provide the balance of the building's annual energy. The Net Zero building helped the Southeast False Creek development achieve Platinum certification under LEED for Neighbourhood Development standards in February 2010.

LEED GOLD FOR NEW MUNICIPAL FACILITIES

All new municipal facilities over 500 m² are required to meet the LEED Gold standard – the most rigorous such requirement in North America.

NATIONAL YARDS

The National Yards, a base for City engineering crews and equipment, was the first building to get the Canada Green Building Council's LEED Gold certification. Drought-resistant landscaping, rainwater collection, waterless urinals, and low-flow fixtures cut potable water use by 75 per cent.

The building's mechanical and lighting systems use 60 per cent less energy than required under Canada's Model National Energy Code for Buildings. Three quarters of the materials used on the project were locally manufactured. To cut CO² emissions, the project provides a 7,500 litre propane storage tank and refuelling for 125 of the yard's vehicles.



National Yards: The first Canadian LEED Gold municipal building

SUNSET COMMUNITY CENTRE

The 3,000 m² Sunset Community Centre, a LEED Gold building, employs numerous energy saving features:

- High-efficiency windows reduce heat loss while permitting generous views and daylight, or privacy and shading as required
- The entire roof system collects storm water; a retention pond and runoff control systems redistribute the water to irrigate the site
- Geothermal heating and cooling using ground source heat pumps, combined with radiant floor heating, reduce energy use
- Dual flush toilets cut water use



Bright light: Monica Poitras, the City's Energy Manager, shows the new LED lighting used in many facilities.

