



IN VANCOUVER'S SOUTHEAST FALSE CREEK: BUILDING AN OLYMPIC VILLAGE FOR ALL TIME

**TWENTY-FOUR SEPARATE BUILDINGS—
OVER 1.5 MILLION SQUARE FEET OF RESIDENTIAL
AND COMMERCIAL SPACE—SPREAD OUT OVER
EIGHT CITY BLOCKS, BUILT IN JUST THREE YEARS
TO THE HIGHEST LEVELS OF ENERGY EFFICIENCY
AND SUSTAINABILITY.**

WHAT AN ACCOMPLISHMENT.

On November 1, 2009, the City of Vancouver and its building partner, Millennium Development Corporation, handed over the completed (and very beautiful) Olympic Village to the Vancouver Organizing Committee of the 2010 Olympic and Paralympic Winter Games.

Over a total of four exciting months in 2010, the Village housed more than 3,000 of the world's best athletes—but that is really only one small part of the story for this brand-new, state-of-the-art Vancouver neighbourhood.

The long-lasting story is how these buildings were built, and what will happen to them now the athletes have gone.

CREATING A TRULY “GREEN” COMMUNITY

Southeast False Creek was one of the last remaining large tracts of undeveloped waterfront land near the downtown Vancouver core. With input from residents, the City determined that it wanted to develop the land as a model sustainable community.

“This is a new type of development for Vancouver, decided upon by the people through open meetings,” says Hank Jasper, General Manager of Development and Construction for the Millennium Development Corporation. “The Vancouver Model of high-rise buildings with parks at the base has been re-thought for Millennium Water. Instead, we have created low- to mid-rise buildings at a much more human scale, with landscaping on the roofs and in the courtyards and wide and naturally lit corridors and stairwells that encourage use and interaction among residents.”

The buildings are also specifically designed to reduce waste and decrease water use and—with the help of BC Hydro's New Construction Program (NCP)—incorporate the very latest and best energy-efficiency measures available anywhere today.

HARD AND FAST DEADLINE

“I told everyone that there is no room for missteps. There is no Plan B. There is only Plan A. The site *must* be ready to turn over to VANOC on November 1, 2009.”

*Hank Jasper, General Manager
of Development and Construction,
Millennium Development Corporation*

BENCHMARK

“We're making history. This development is at the cutting edge.”

*George Crowhurst, BC Hydro
Senior Key Account Manager*

A MODEL FOR FUTURE DEVELOPMENTS

“Through this project, developers will see the opportunities to design and build efficiently. They'll see that there is no compromise in the quality—not less light, but lower energy bills. And of course future tenants will pay less for energy. Everybody wins.”

*Nikolay Smirnov, BC Hydro
Senior Engineer, Lighting Group,
Power Smart Engineering*

BUILT-IN ENERGY EFFICIENCY

BC Hydro's NCP team, was involved in all stages of the development, from early schematic design in 2007 to final building construction in 2009.

"To begin with," says George Crowhurst, Senior Key Account Manager, "we provided funding for the developer to 'model' the buildings—which is a crucial method for us to be able to see exactly which measures will give the greatest energy savings and be the most cost-effective, and therefore which we should support with further incentives."

Done through advanced computer software, the modeling allowed BC Hydro, the developer, the architects and their design teams to see exactly how each building would perform over a whole year.

"Building performance modeling programs can run whole year detailed simulations to show how a particular building will perform at different times of day and night, and in different climates," says Bojan Andjelkovic, Power Smart Specialist Engineer. "By doing this at the early concept design stage, you can interactively explore different design strategies—you can see, for example, what happens if you change a building's orientation, shape, mass or envelope, or if you use different building systems and energy sources. It's much more time- and cost-effective than trying to make changes later."

The modeling proved that innovative building systems—such as virtually silent, fast-acting radiant heating and cooling systems built into the ceilings, constant natural ventilation even when windows are closed, and the use of lighting controls in all parkades and residential corridors—would save substantial amounts of energy and keep Olympic athletes and future tenants comfortable and safe.

"The modeling also helped the team do a lifecycle cost analysis and revealed the payback time for each measure," says Bojan. With BC Hydro's incentives to help cover the costs of energy-efficiency measures, those vitally important payback times dropped dramatically.

THE RIGHT HELP AT THE RIGHT TIME

"We realized that, for developers, time is money and time spent doing unnecessary paperwork does not get a building—or in this case, many buildings—finished on time. We have a simple and flexible process that aligns with project schedules to help developers to go through the program in a more efficient way," says Luis Damy, NCP Program Manager.

"Cost can be discouraging," says Millennium Development's Hank Jasper, "but BC Hydro gave us important support, important encouragement. It makes all sorts of sense for builders to be encouraged to conserve and recycle and re-use energy. I really believe, if everybody worked at this standard of sustainability and energy efficiency, it would have a huge impact on the world. It's also, of course, good business: the buying public want to live in a sustainable community."

TIME IS MONEY AND THE OLYMPICS DO NOT WAIT

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Luis Damy, NCP Program Manager



THE CONSERVATION MEASURES IMPLEMENTED AT MILLENNIUM WATER ARE ESTIMATED TO HAVE SAVED ENOUGH ELECTRICITY TO POWER MORE THAN 1100 HOMES.

Once the Olympics are over, Millennium Water will become part of the fabric of the city, with 1,100 residential units—730 market, 250 affordable, and 120 rental to accommodate a generous mix of seniors, singles, and families—a community centre, as well as commercial space housing a major grocery store and pharmacy, restaurants, retail shops and other essential services.

“When people talk about the 2010 Olympics or about the development of Southeast False Creek, I’ll be able to say that we had something to do with that,” says BC Hydro’s George Crowhurst. “We’re making history. This development is at the cutting edge.”

MORE ABOUT SOUTHEAST FALSE CREEK

LEED® PLATINUM NEIGHBOURHOOD

The buildings of Southeast False Creek are remarkable for more than just housing Olympic athletes. On February 16, 2010, the entire development was awarded Leadership in Energy and Environmental Design Platinum certification, which makes it the greenest, most energy-efficient and sustainable neighbourhood in the world.

All of the buildings decrease water and energy use by at least 50 per cent. The water savings come primarily from low-flow plumbing fixtures and harvesting storm water for use in toilets and irrigation, while energy-efficiency measures include:

- an in-street, neighbourhood energy system that uses heat from raw sewage to supply domestic heat and hot water
- increased wall and roof insulation as well as high-performance glazing
- in-ceiling radiant heating and cooling
- added thermal mass in the floors
- high-efficiency transformers
- heat pumps and variable refrigerant flow (VRF) systems
- passive and active solar shading (fixed and motorized shades)
- natural and displacement ventilation for fresh air
- lighting power density (LPD) reduction, and
- lighting controls, including occupancy and daylighting sensors, to ensure electric lighting is used only when needed.

CONGRATULATIONS TO A TOP-FLIGHT DESIGN TEAM

Mechanical Design
and Energy Modeling:

- Cobalt Engineering LLP

Electrical and Lighting Design:

- Nemetz (S/A) & Associates Ltd.
- Acumen Engineering

Architecture by Canada’s
leading architect:

- Arthur Erickson,
Nick Milkovich Architects,
Gomberoff Bell Lyon
Architects, Lawrence Doyle
Young + Wright Architects,
Merrick Architecture
and Walter Francl
Architecture Inc.



In addition, two buildings go above and beyond even that high-water mark for green design.

NET-ZERO SHOWCASE

One residential building for seniors is a showcase for net-zero heating. It cost over 15 per cent more to construct but, by taking advantage of the sun and by capturing and re-using waste heat from the nearby grocery store, the building produces just as much heating energy as it uses—which means it will quickly pay back that extra investment through energy savings alone.

UNIQUE COMMUNITY CENTRE

The 30,000 square-foot waterfront community centre, which includes a non-motorized boating facility with direct access to False Creek, boasts many unique features. Among them: a first-in-Canada Solar Absorption Chiller, which uses free solar energy instead of electricity not only to cool the building when necessary, but also for hot water in the summer and space heating in the winter. Any surplus energy goes back into the neighbourhood energy system.

The community centre is also, according to BC Hydro's Nikolay Smirnov, "truly outstanding" from a lighting perspective. "It has contemporary and energy-efficient fluorescent luminaires throughout, occupancy sensors in almost every space, low-maintenance induction technology in the main lobby, and daylighting controls in the gym and fitness centres."

BC HYDRO'S NEW CONSTRUCTION PROGRAM

Designed for commercial, institutional and multi-unit residential new developments or major building retrofits, BC Hydro's New Construction Program helps reduce the cost of building energy-efficient buildings by providing incentives, resources and tools to developers and owners (and their design teams) so they can create better, greener, more energy-efficient buildings from the ground up.

To sign up for the New Construction Program or to increase your current Power Smart activities:

- contact your BC Hydro Key Account Manager
- call 604 522 4713 in the Lower Mainland or 1 866 522 4713 elsewhere in BC, or
- visit bchydro.com/construction.

