Construction and Eco-district standards in Vancouver B.C.

Report on the Minergie Event held on March 28, 2011

Event Location: UBC Robson Square, Vancouver, BC, Canada

Organizers: Swiss Business Hub Canada in Vancouver
Swiss Canadian Chamber of Commerce (BC) in Vancouver.

Sponsors: Cleantech Switzerland
Walter Francl Architecture Inc.
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Speakers: **Stephan Tanner,**
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Helen Goodland,
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Stephan Tanner

Helen Goodland

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With the support of the Swiss Canadian Chamber of Commerce (B.C.) Inc. and Consulate General of Switzerland in Vancouver

Vancouver, April 2011:
It is estimated that by 2025 more than 75% of world population will reside in large urban centers. Cities will use increasingly more soil, become energy consumption hubs and pollution centers, and will, unfortunately, also create social and economic inequalities amongst their inhabitants.

To counter this, so called "Eco-districts" are seen as a world-wide necessity. Eco-districts are characterized by the savvy use of locally harvested materials, combined management of used and fresh water sources and ground water protection. These districts also have electricity generation from renewable energy sources and vehicles using natural gas, hydrogen and bio-gas and buildings that are constructed to meet new green building standards.

Recently the City of Vancouver has set an ambitious goal to be the greenest city in the world by 2020. Vancouver is not the only contender in this race.

Green building standards such as the MINERGIE® in Switzerland and LEED® in the United States and Canada can help countries reduce their energy consumption. They can be considered as a vital tool to help cities move towards a greener future.

Switzerland created the voluntary MINERGIE® (www.minergie.ch) standards to cover new as well as existing buildings. Adhering to MINERGIE® ensures a rational use of energy, including renewable sources; meanwhile enhancing quality of life (*i.e.* enhanced use of natural light and strict limits on construction pollutants).

Several categories of MINERGIE® compliance ranging from basic standard to the highest level of Eco-friendliness can be selected for family dwellings, commercial and residential buildings and different types of public buildings. The ecological impact of a building is evaluated over the lifetime of the building (*i.e.* from construction to demolition) to ensure the overall impacts are kept to a minimum.

In September 2010 the Swiss Canadian Chamber of Commerce (SCCC) published its Clean Technology Report. The goal of the report was to identify hot sectors for green technology in Vancouver and foster Canadian-Swiss business exchanges in this growing area.

One example of such an exchange came between the SCCC and Helen Goodland, the Executive Director of Light House Sustainable Building Centre (a non-profit society dedicated to advancing green building in B.C.). After talking with SCCC she travelled to the University for Applied Science of Biel in Switzerland to meet with MINERGIE® building experts to discuss what was potentially missing in the Canadian standards and how to advance the green building industry in Canada in order to ensure the spread of more energy efficient and low carbon buildings.

She found that the green building goals set by the City of Vancouver for the greenest City initiative displayed more similarities to the Swiss MINERGIE® than to the US LEED® standards. Switzerland is among an elite group of pioneers, which together with countries such as the UK, Germany, Sweden, have a number of MINERGIE® compliant Eco-districts projects underway, or ready to be approved in many cities. In Switzerland, MINERGIE® is taught to architects and contractors in courses and seminars, and at MINERGIE® EXPOs.

The Swiss standard is becoming so widely renowned, that all the buildings belonging to the Swiss mission in the new city of Masdar (meaning "the Source") in Abu Dhabi will be built following the MINERGIE® standard. This will be a living showcase of the concept, promoted by Abu Dhabi, of a feasible and economically sustainable Eco-friendly city.

As energy costs increase, Canada will become an ever growing market for Clean Technology, especially green building, and will play an increasingly important role as it will be the gateway to the Asian market. For these reasons, the Swiss Canadian Chamber of Commerce together with the Swiss Trade Commissioner in Western Canada, Mr. Florian Gabriel (Swiss Business Hub Canada), the Consulate General of Switzerland in Vancouver and the Lighthouse Sustainable Building Centre addressed several topics at a meeting of a focus group of local high-level professionals (*i.e.* architects, contractors, engineers, local business owners and politicians). The group of more than sixty people generated a healthy conversation regarding the state of green building standards in Vancouver.

Among the conclusions of the focus group where the following:

- Vancouver does not have a solid framework for meeting its 2020 Greenest City Initiative (GCI). LEED® Gold certified buildings will not ensure buildings reach the levels set by the GCI. A clearer set of energy objectives are needed to help architects, developers and designers to meet the GCI goals.

- LEED® standards use ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) measures, yet these standards do not actually help building meet the reduction in energy consumption needed to reach the GCI goals.

- Conversely, moving towards MINERGIE® standards will help the city take a step in the right direction for achieving its GCI goal.

- A framework is needed in order to standardize the energy consumption calculation for heating, cooling and water usage.

- It is unclear if other initiatives, such as having home gardens, will be considered as part of the GCI plan?

- Frustration is felt by architects and contractors, who feel that the LEED® certification is an expensive and lengthy process and fails to set clear, measurable and achievable targets.

- Strong architectural competition in Switzerland leads to high standards and new tools. The same competition should be achieved in Vancouver.

- Focusing on multifamily houses rather than on single houses will have a significant impact on energy consumption, as Vancouver has more multifamily housing than other cities.

- Current costs for electricity/natural gas (see below) are too cheap to provide an incentive to improve the insulation and heat recovery, etc. of buildings.

    - Electricity commercial: 4cents/kWh,
    - Electricity residential 8cents/kWh
    - Natural gas approx. 3 cents kWh

  This may change in the future as many sources in B.C. predict that the price of energy will go up. Some suggest a 33% rate hike may occur over 4 years.

- Cultural differences also exist in property investment. Swiss people often buy a property to hold on to it for a long term investment. Developers cater to a market that wants buildings that are energy efficient and will save them money over the years. On the other hand, in North America the life cycle of buying and selling is shorter, so only the net price is taken into account making the idea of return on investment is almost meaningless.

- It is possible to build a multi-story building following MINERGIE® standards. This can be achieved by focusing on the envelope of the building and by using ground source heat pumps to regulate the temperature.

- Many features that make comfortable living spaces, including an air tight envelope, air circulation and lots of natural light can be achieved with little or no energy input, therefore it can be stated that if one builds towards comfort then energy savings will happen naturally.

- Ensuring the building performs to its fullest energy saving potential requires the education of its occupants, because how it is operated will determine how it impacts the environment. Using tools to prompt the user about their energy use is a simple way to encourage compliance.

- However, the animated conversation between the envelope consultant and the mechanical engineer highlighted some important diverging interests. In a more ideal world, some of the budget historically dedicated to mechanical systems/design would be re-directed to envelope designers who could (conceivably) reduce heating/cooling loads using smart design/materials.

- The awareness of Switzerland's prodigious facade engineering services increased, as the lack of such capabilities is also understood here. It seems that local envelope consultants are indeed only retained to keep the water out – not to provide input into thermal, acoustical, and only sometimes structural performance.

- Developers are concerned that city targets will not be economically viable. They are motivated, but won't spend the extra money.

- In order to achieve the 2020 goals, efforts have to be developed between now and 2015. Later it will be too late!

- The "elephant in the room" is the set of existing buildings (95%) that need to be retrofitted to meet targets. Especially in Vancouver, if buildings are constructed correctly there will be little need to cool a building, yet most office buildings in Vancouver are using energy to be cooled.

- The SCCC, the Swiss Business Hub Canada and Cleantech Switzerland like to bridge the gap between these two countries, Canada and Switzerland, and find collaborative efforts to help the City of Vancouver reach the Greenest City initiative goals.

Vince Sciamanna, President of the SCCC, is adamant that we need to invest in creating energy savvy residential and commercial buildings requirements, as well as eco-friendly industrial applications. The SCCC is a valid partner for any initiative that would create synergies between Switzerland and Canada.

It is indeed the right time to foster exchanges in building and construction technologies, focusing on best practices and applying international benchmarks to reach high energy efficiency in buildings, thus tackling a sector that still takes nowadays the lions share greenhouse gases emissions.

For questions and comments please contact the Swiss Canadian Chamber of Commerce (B.C.) Inc. by sending an Email to the following address:

chamber@swissccc.com Subject: "Minergie"






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