



CITY OF VANCOUVER

POLICY REPORT
DEVELOPMENT AND BUILDING

Report Date: July 7, 2008
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Meeting Date: July 22, 2008

TO: Standing Committee on Transportation and Traffic

FROM: The Manager of Sustainability in consultation with, the Chief Building Official, the Director of Legal Services, the Director of Planning, the Director of Development Services and the General Manager of Engineering Services

SUBJECT: Part 3 Division B Green Building Strategy Update

RECOMMENDATION

- A. THAT Council receive this update and endorse the development of the recommended by-law amendments and zoning guidelines to enhance the environmental performance of all buildings regulated under Part 3 of Division B of the Building By-law (generally over 3 storeys or greater than 600 m² in building area) as outlined in this report.
- B. THAT Council approve the proposed amendments to the Building By-law and to Appendix A to the Building By-law, generally as outlined in Appendix A, to update the energy efficiency standard for Part 3 buildings, to be effective as of September 5th 2008.
- C. THAT Council instruct the Director of Legal Services to bring forward a by-law to amend the Building By-law, generally as outlined in Appendix A.

CITY MANAGER'S COMMENTS

The City Manager RECOMMENDS approval of A, B and C.

COUNCIL POLICY

Council may pass by-laws to regulate the construction of buildings and adopt any code relating to the construction of buildings, with any changes that Council consider appropriate.

In 1990, Council approved the establishment of the Energy Utilization Program. The actual amendments to the Building By-law were enacted by Council on August 15, 1991.

In March 2005, Council approved the Community Climate Change Action Plan to reduce greenhouse gas (GHG) emissions in the community to 6% below 1990 levels by 2012.

In March 2007, Council passed a motion directing staff to begin planning for significant, long-range GHG reductions with the eventual goal of becoming a carbon-neutral city.

In May 2007, Council adopted the Building By-law which included environmental protection objectives. Although no new “green building” requirements were added to the by-law at that time, the environmental protection objectives were put into place to facilitate the future development of the Green Building Strategy. Council directed staff to report back on the development of this strategy.

In July 2007, Council adopted targets to reduce community GHG emissions to 33% below current levels by 2020 and 80% below current levels by 2050. In addition, Council adopted the target of having all new construction be GHG neutral by 2030.

SUMMARY

The report updates Council on the implementation of the Part 3 Green Building Strategy (GBS), and recommends that the 3rd-party standard referenced in the Building By-law for energy efficiency regulation be updated to utilize the 2007 version of ANSI/ASHRAE/IESNA Standard 90.1 (ASHRAE 90.1).

PURPOSE

The purpose of this report is to update Council on the current status and projected implementation timeline of the Green Building Strategy. This report also recommends a new energy efficiency standard for Part 3 buildings (generally over 3 storeys or greater than 600 m² in building area). The updated reference standard will help the City achieve its community green house gas emissions reductions target and contribute to its goal of achieving carbon neutral new buildings by 2030.

BACKGROUND

In 2007 Council approved a work plan for staff to begin policy research and recommend by-law amendments to achieve “greener” buildings. Council requested a report back on the progress of this work once it was underway. Also in 2007, Council approved several new GHG reduction targets that will require buildings in the community to be more efficient.

DISCUSSION

The Green Building Strategy (GBS) was developed to advance sustainable design practices in the marketplace in order to minimize the impacts that buildings have on the local

environment, as well as limit their contribution to global climate change. The approved strategy reflects a long-term commitment to improving energy and water efficiency, material conservation, and indoor environmental quality in all new and retrofitted buildings. It should be noted that the current GBS does not represent end of staff's effort to increase the sustainability of Vancouver's building stock. Ongoing work will continue to reflect advancements in the building and design industries, and will support council approved targets such as GHG reduction and waste diversion.

Current Status of the GBS:

Implementation of the current GBS began in June of 2007; it was projected to take approximately 10 months to complete. There have been delays in delivering the program due to staffing, job action, and the need for both Sustainability and staff in the Office of the Chief Building Official to work on fixed deadline development projects during much of 2007. Given these constraints, the delivery of the GBS is now projected to be completed in the fall of 2008.

Council directed staff through the GBS to amend by-laws and in some cases explore new green building measures for their viability and applicability. The actions listed below come from the work plan Council approved in May 2007. The actions include both specific amendments and areas of further study. They have been separated into three categories: 1) actions completed to date; 2) actions recommended for approval in this Council report; and 3) actions still under development.

1. Actions Completed to Date

The actions listed below are those have been implemented through past GBS work plans, some of which will continue to be refined to support other City policies and directives. These actions include liaising with the Homeowner Protection Office on greenroofs and actions related to the development of parking regulations.

Rainwater Management:

- Action 1: Require drains in parking garages to connect to sanitary sewers instead of stormwater drains.
- Action 2: Liaise with Homeowner Protection Office on issues related to the development of greenroofs in our climate.

In-Building Water Conservation:

- Action 1: Adopt low flush toilets in non-residential buildings.
- Action 3: Review and analyze cost impacts, benefits, and regulatory barriers to requiring dual flush toilets and Energy Star laundry machines and dishwashers.

Transport Demand Management:

- Action 2: Provide additional relaxations for minimum parking requirements.
- Action 3: Review the feasibility of unbundling parking requirements.
- Action 4: Update requirements for secure bicycle parking and other end-of-trip facilities.

- Action 5: Expand transportation demand management requirements for new developments.

2. Actions Recommended for Adoption in this Report

This report recommends that Council adopt the 2007 version of the ASHRAE 90.1 Energy Standard for Buildings, as developed by the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). The adoption of the 2007 version of the standard supersedes both Actions 2 and 3 (referenced in the May 2007 report and listed below) under the Energy Efficiency and GHG Reduction stream and supports the completion of Action 1.

Energy Efficiency and GHG Reduction:

- Action 1: Improve and streamline enforcement of the Energy Utilization By-law requirements
- Action 2: Adopt ASHRAE 90.1 2004 as new Energy Utilization By-law.
- Action 3: Decrease overall building energy use requirements by 12-15% beyond ASHRAE 90.1 2001 to meet Natural Resources Canada (NRCan) Commercial Building Incentive Program (CBIP) requirements.

The energy utilization requirements in the Vancouver Building By-law are currently referenced to ASHRAE Standard 90.1-2001. The 90.1 standard is an integrated standard for whole-building energy efficiency, including lighting, heating, and mechanical operations for Part 3 buildings (buildings that are generally over 3 storeys or greater than 600 m² in building area). The 90.1 standard has been endorsed as an energy conservation standard by both the Canada Green Building Council (CaGBC) and the United States Green Building Council (USGBC) in their building rating systems. ASHRAE releases new versions of the 90.1 standard periodically to stay current with the latest developments in energy efficient design and mechanical equipment.

The 2007 Standard has several improvements that will increase efficiency in building energy consumption over the 2001 version of the Standard, which is currently referenced in the Building By-law. ASHRAE 90.1-2007 is approximately 12.5% more efficient than ASHRAE 90.1-2001, which is equivalent to the target identified in the action plan appended to the May 2007 GBS report (12-15% beyond ASHRAE 90.1 to meet CBIP) requirements. This improvement represents an incremental step for Vancouver towards achieving its goal of carbon neutral new construction by 2030, and to its commitment to achieve 80% reductions in community GHG emissions by 2050.

The adoption of ASHRAE 90.1-2007 will help to streamline the process by which staff review building permits for energy efficiency. The current reference to ASHRAE 90.1-2001 in the Building By-law requires the application of a significant number of errata to the Standard; adopting the 2007 version would eliminate this step, often confusing to applicants. By referencing the current Standard in the Building By-law, applicants will be able to better understand the energy utilization requirements of the Building By-law.

Staff will also be developing a review process that improves the ability of staff to ensure compliance with this new version of the Standard. The City received \$50,000 to develop this process from the Community Action on Energy Efficiency Fund from the Provincial Government. The funds will be used to review and develop an appropriate compliance program and provide training to the requisite staff.

Consultation has been carried out with various industry stakeholders, including BC Hydro and local mechanical design professionals. The findings of this consultation were that ASHRAE 90.1-2007 was not out of the capabilities of industry, and would increase the overall efficiency of new buildings. Stakeholders also felt that there would not be any significant costs added to projects given the current City interpretation of the Standard.

At a City of Vancouver UDI Liaison committee on January 16th 2008 Staff updated the UDI on the current progress of implementing the GBS. Staff raised the subject of going to a more current version of the ASHRAE Standard at that time. The UDI did not object to the new energy efficiency requirements provided that the new requirements did not significantly deviate from the current requirements of the VBBL. Staff assured that members of the UDI that this was the case and that there would also be no significant cost increases associated with the City adopting a more current version of the standard, again given the current City interpretation of the Standard.

As part of the "Greening of the BC Building Code", the Provincial Government recently adopted the requirement for all Part 3 buildings in BC to comply with ASHRAE 90.1-2004. While the differences between these versions of the Standard are minimal, staff believe that in adopting the 2007 version for our community, Council would allow Vancouver to continue to be at the forefront of green building regulation, and a leader in the Province for sustainable design best practices.

3. Actions Currently in Process

Rain Water Management:

- Action 1: Conduct analysis with recommendations and timeline for a city-wide storm water management plan for development.
- Action 2: Develop on-site storm water management requirements for surface parking lots to include oil separation and infiltration facilities to reduce runoff and improve water quality.

Heat Island Effect Mitigation:

- Action 1 & 3: Develop voluntary guidelines for greenroofs and high albedo Energy Star™ "cool" roofs that maximize rain-water management, energy efficiency, habitat, and aesthetics.

Landscape and Ecology:

- Action 1: Develop guidelines for voluntary urban agricultural installations that will be tested and reviewed for 18 months to 2 years once approved.
- Action 2: Develop voluntary guidelines for native & low-water use landscaping. Guidelines will include appropriate plant lists and irrigation and maintenance best practices.

Water Conservation:

- Action 2: Permit waterless urinals as accepted plumbing fixture: ANSI standard.
- Action 3: Develop requirements for low flow irrigations systems that will decrease water use by 50%

Energy Efficiency and GHG reduction:

- Action 4: Develop energy use targets by building type as an alternative energy compliance path.

Passive Design:

- Action 1: Evaluate passive design FSR exclusions that were used in SEFC Olympic Village; assess desirability and feasibility of extending exclusions more broadly; assess compatibility of current design guidelines and regulations with passive design features. Recommend approach to zoning and/or guidelines revisions.

Waste Diversion:

- Action 1: Develop mandatory Construction Waste Management Plans for all construction projects to be monitored through the building permit process.
- Action 2: Develop recycling targets (e.g. 50-75%) by analyzing existing building types and GVRD bans, recycling infrastructure, and robustness of markets.
- Action: Develop zoning guidelines and amendments to the Solid Waste By-law for improved in-building waste reduction facilities (waste, recyclables, organics) to support future banned materials such as organic waste. Sizing formula will be based on building occupancy.

Transport Demand Management:

- Action 6: Develop requirements for accommodating charging of electric vehicles.

Staff will continue to consult with the community and relevant stakeholders, and where necessary perform cost benefit analysis in the ongoing development of GBS actions. To date, one open house, and 8 stakeholder meetings have been held which have reached over 200 people on the delivery of various GBS actions items. Staff recognize that consultation and dialogue with industry and the public will be critical to developing a more robust and effective strategy.

FINANCIAL IMPLICATIONS

There are no financial implications.

PERSONNEL IMPLICATIONS

There are no personnel implications

ENVIRONMENTAL IMPLICATIONS

The GBS will assist in reducing building related greenhouse gases, energy consumption, potable water use, rain water runoff, water quality, and material waste.

COMMUNICATIONS PLAN

Individual staff teams will continue to meet with stake holders and members of the public through out the implementation of the GBS. The public will also be updated on the progress of the various initiatives via the GBS website (www.vancouver.ca/sustainability/building_green.htm). Where necessary, bulletins notifying applicants of the relevant changes to by-laws will also be developed and distributed.

PUBLIC CONSULTATION

The GBS staff will also continue to seek advice and direction from representatives of the development industry, educational institutions, and the design fields through the Green Building Strategy Stakeholder Committee, as well as internally through staff development and the Green Building Strategy Steering Committee.

CONCLUSION

The recommended amendments to the provisions for energy efficiency within the Building By-law will help improve energy efficiency in new buildings and reduce GHG's. The 2007 version of the ASHRAE 90.1 Standard addresses all facets of energy efficient design for new buildings and will help Vancouver move towards achieving its GHG reduction targets. The adoption of this Standard will allow Vancouver to confidently move again into a leadership position in energy conservation and GHG reduction in Canada.

The completion of the council approved GBS is on schedule to be completed by the end of 2008. Staff will continue to develop the recommended by-law amendments in consultation with both internal and external stakeholders and partnership with industry.

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Appendix A

- In Division B, Part 1, Section 1.3 of the Building By-law, change Table 1.3.1.2 as follows:
 - In the row containing "ANSI/ASHRAE/IESNA", change 90.1-2001 in the second column to 90.1-2007
- In Appendix A to Division A, Part 1 of the Building By-law, change Sentence 1.3.3.7.(2) to read as follows:
 - **Energy Utilization By-law.** See Building Bulletin 2004-008-BU for more details on the implementation of the Energy Utilization By-law to the ASHRAE 90.1-2007 edition.