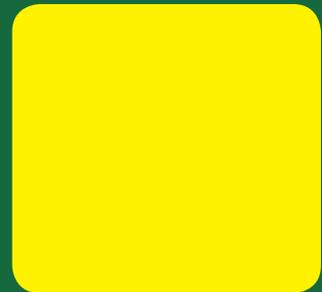




Local Government Green Building Programs

PREPARED FOR THE REGIONAL DISTRICT OF NANAIMO



Hughes Condon Marler : Architects



Introduction

The Regional District of Nanaimo commissioned Hughes Condon Marler: Architects in May 2005 to organize and conduct a tour of green buildings in the Vancouver and Victoria areas and to undertake a review of existing green building municipal and regional programs in the region. This work is intended to help fulfill the objectives of the RDN's Green Building Project.

The objectives of the Green Building Project are for the RDN to become more informed about green buildings and for the RDN to make a decision regarding the advancement of future phases of a green building program for the region.

"Local Government Green Building Programs" highlights one regional district green building program and seven municipal programs. The information was collected from websites, public and internal documents, personal interviews and phone conversations between the consultant team and the various managers and staff of the selected programs.

The objectives of this report are to provide the RDN with an overview of the issues related to establishing and managing a green building policy and program and to facilitate the discussion required to advance the future phases of the Green Building Program for the RDN. The report provides, in a single source, a brief description of the following aspects of each program:

- Current Status of the Program
- Historical Time Line
- Components of Adopted or Proposed Policy
- Incentives
- Plans for Future Program Expansion
- Opportunities and Challenges
- Results or Impacts of the Program
- Human & Financial Resources Allocated

During the preparation of this report, three key findings emerged:

Community Based Green building programs and policies can take on many formats. Most importantly, the selected format must be rooted in and derived from the community to ensure community 'buy-in'.

It was stressed by most individuals involved in the selected programs that community support is paramount to the success of any program.

Industry Wide In order to achieve their ultimate environmental goals, program and policies in place must target or have plans to target all sectors of the building industry, from small scale residential to large institutional work and everything in between. It has been well documented that green buildings have a multitude of benefits, socially, economically and of course environmentally. However, it is in the wide scale adoption of green building practices that the transition towards a more sustainable built environment will be most successful.

Long Term Planning Ongoing education, promotion, administration and celebration of green building practices are key components of success. Municipalities or regional districts embarking on green building programs should allocate thoughts and resources into the long term planning of their programs and policies. Many local governments are realizing that programs and policies must be flexible and able to change over time to meet the constantly evolving definition of a sustainable built environment.

Beyond the Building Scale Many leading municipalities with proven success in establishing green building policies are now implementing sustainable infrastructure programs. Applying sustainable design strategies at the urban scale has the potential to significantly reduce detrimental effects of the built environment on the region by providing multiple synergies between buildings.

"Local Government Green Building Programs" reflects the contributions and cooperation of numerous individuals, to whom we are thankful. We trust readers will find valuable knowledge and inspiration in the program and policies highlighted here, and begin to establish some ideas for the future phases of a green building program for the Nanaimo Regional District.

Michel Labrie
 Director of Sustainable Design
 Hughes Condon Marler : Architects

Disclaimer

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Local Government Green Building Programs



Introduction	01
Greater Vancouver Regional District - BuildSmart Program	05
City of Portland - G/Rated Program	11
City of Richmond - High Performance Building Policy	19
District of Saanich - Green Building Policy	25
City of Seattle - Sustainable Building Program	29
City of Vancouver - Green Building Program	35
City of Victoria - Green Building Policy	43
Resort Municipality of Whistler - Whistler 2020	47
Comparative Chart	52





Gleneagles Community Centre



PATKAU ARCHITECTS



Greater Vancouver Regional District - BuildSmart Program

www.gvrd.bc.ca/buildsmart

Purpose of Existing Program

Building Towards Sustainability The Greater Vancouver Regional District is an international role model for its successful stewardship of local environment and its leadership in community development and growth management strategies. Greater Vancouver is consistently voted one of the most desirable regions in the world to live in. As the region continues to grow, it is crucial that strategies are implemented to improve the quality, cost-effectiveness, and performance of development while simultaneously reducing stress on the environment.

Building green is essential to a sustainable future for Greater Vancouver. To help develop the region in a way that achieves economic prosperity, environmental health and community well-being, BuildSmart provides a resource for the design and construction industry, helping building professionals make smart, sustainable choices when crafting the future of the constructed environment.

Green buildings are key to demand side management for the GVRD. The main objective of BuildSmart is to mainstream green building design, construction and retrofits in the local building industry for better environmental quality, reduced long-term demand (and cost) on regional/municipal infrastructure and improved public health. The program has the following goals:

Short Term Goals and Objectives

- Raise awareness in the building industry about benefits of green buildings
- Provide targeted technical education to building professionals
- Build partnerships for program development/delivery

Long Term Goals and Objectives

- Link green buildings to sustainable community and infrastructure development
- Incorporate green buildings in regional utility plans and growth management strategy
- Work with industry and government to address non-regulatory and regulatory barriers

Historical Time Line

2000 - Sustainable Region Initiative The Sustainable Region Initiative (SRI) is a comprehensive approach to building a pleasant, prosperous, and resilient future for the citizens of Greater Vancouver. Although spearheaded by the Greater Vancouver Regional District, the SRI is not intended to be a single agency initiative, but is meant to be undertaken by everyone concerned with the future of this region.

2001 - Green Building Program The GVRD green building program BuildSmart was launched in 2001 as part of the GVRD Sustainable Region Initiative.

October 2001 - Green Buildings and Sustainable Communities Conference On October 3, 2001, 400 architects, engineers, planners, builders, developers, building owners, managers, municipal staff, mayors and councilors from local municipalities convened at the Waterfront Hotel in Vancouver for a one day conference on "Green Buildings & Sustainable Communities."

2002 - Creation of Green Building Task Force The purpose of the group is to identify key goals, strategies and actions to advance green buildings in Greater Vancouver.

2002 - Creation of LEED BC Steering Committee This committee includes the GVRD, City of Vancouver, BCBC, Ministry of Competition, Science and Enterprise, CMHC, NRCan, BC Hydro and Teresen Gas. The partnership is based on the common goal to mainstream green buildings in BC.

PROGRAM

Greater Vancouver Regional District BuildSmart Program

GENERAL ENQUIRIES:

Greater Vancouver Regional District Head Office Information Centre
 BUILDSMART@gvrd.bc.ca | Phone 604-451-6575

GVRD Information Centre BuildSmart Program

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Components of Existing Program

The GVRD BuildSmart program is the first integrated, technical education and assistance program offered by local government in Canada to advance sustainability in the building industry.

The BuildSmart program has four concurrent and interrelated program elements to change industry practices:

- Creating a common framework for green building using Leadership in Energy and Environmental Design (LEED®)
- Targeted professional education and information exchange in partnership with industry organizations
- Establishing long-term, external partnerships for program development and delivery, research and policy support
- Green building policy endorsement at the regional government level

The program offers tools and resources to design professionals in order to increase the acceptance of sustainable building practices within the GVRD. The most significant element of the program is the website. This website offers numerous resources about sustainable building in six main categories: How to Build Green, LEED, Tools and Resources, GVRD Publications, Professional Services and News and Events.

The BUILDSMART Website

How to Build Green The BuildSmart website offers numerous links for a wide range of topics related to sustainable buildings. This section of the website offers in-depth information in the following areas: design, construction, operation and maintenance, retrofit and renovation, demolition, industry standards, support programs and case studies.

LEED The website provides a description of the LEED Green Building Rating System. The LEED program is a voluntary self-assessment tool that recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources. Based on well-founded scientific standards, LEED emphasizes five performance areas of green building design and construction:

- Sustainable site development
- Potable water efficiency
- Energy efficiency
- Green materials selection and
- Indoor environmental quality

An adaptation of the LEED standard to British Columbia has been approved by the USGBC. The LEED BC program recognizes the equivalent Canadian standards and should reduce the cost implications of attaining LEED status. A Canada Green Building Council was established in December 2002 with the goal to “mainstream” green building in Canada. Different levels of government in BC and Canada are working to adopt policies requiring that their own facilities be built or renovated to meet LEED certification criteria.

BUILDSMART Green Building Product Directory To help the design and building industry source building materials that have less of an impact on the environment, the GVRD developed the Green Building Product Directory. It features over 600 products that contain either recycled or salvaged materials, utilize materials in a more efficient manner and, are energy-efficient or conserve water. All products listed in the Directory are available in the Lower Mainland.

Other Product Directories

- Better Buildings
- Green Building Rating System
- Evaluation Tools
- Technical Manuals
- Green Building Programs

GVRD Publications The GVRD provides a number of tools and resources to support green building principles and practices. The many available resources guides and documents provide useful local information to the design community. Here is an abbreviated list of available documents:

- Part 1: Why Build Green? Ten Key Questions Answered
- Part 2: Why Build Green? LEED - BC “Road Map” workshop summary

“BuildSmart provides a resource for the design and construction industry, helping building professionals make smart, sustainable choices when crafting the future of the constructed environment”



Components of Existing Program cont

- Green Construction: Introducing Green Buildings & LEED to Contractors
- Greater Vancouver Regional District LEED Implementation Guide for Municipal Buildings
- Job Site Recycling Directories
- Report on Effectiveness of Stormwater Source Control
- Sustainable Building Design: Principles, Practices and Systems
- Best Practices Guide: Material Choices for Sustainable Design
- Old to New Design Guide: Salvaged Building Materials in New Construction
- BUILDSMART Green Building Product Directory
- Project Waste Management Master Specification
- Building Deconstruction Master Specification
- Advanced Framing Techniques: Reducing Costs Through Resource-Efficient Building
- Construction Waste Recycling: A Guide for Builders and Contractors
- Demolition and Salvage: A Guide for Project Managers and Contractors
- Stormwater Best Management Practices Guide

Professional Services The website offers links to organizations that can assist in finding green building professionals from a wide range of disciplines.

- Association of Professional Engineers and Geoscientist of British Columbia
- BC Construction Association
- Consulting Engineers of BC

- Green Buildings BC pre-qualified list of Energy Performance Contractors
- US Green Building Council LEED Accredited Professional Directory

New and Events The BuildSmart site offers up to date information in three main sections: news, recently released reports and events. This section provides people in the industry a single source for current information.

Incentives

The GVRD does not provide direct financial incentives for green building projects. However, the BuildSmart program offers various resources to facilitate the design, construction and management of green buildings.

Plans for Future Expansion

One of the long term goals of the GVRD is to move towards sustainable infrastructure management. Green buildings provide a target or vehicle to simultaneously advance regional environmental priorities and better manage demand on infrastructure services while reducing operating costs to owners and ensuring the well being of buildings occupants.

Opportunities and Challenges

The BuildSmart program is contributing to the three-level approach taken by the SRI to advance sustainable development in Greater Vancouver:

- Applying sustainability principles to GVRD corporate practices

GVRD BuildSmart Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
Helen Goodland Senior Advisor: Sustainable Buildings	Adopted LEED as primary tool in the region to promote green buildings	3.5	Recommends voluntary use of LEED to member municipalities and LEED certification for all new GVRD buildings	8	45



Opportunities and Challenges cont

- Seek implementation of sustainability principles in regional mandates and services
- Build partnerships to achieve sustainability in the region as a whole

The near future will be dedicated to studying how the GVRD can shape its green building program to best achieve these three objectives.

The Green Building Task Group has identified “opportunities for implementation” for green buildings in Greater Vancouver. These opportunities may be challenging to set up or achieve but offer great potential for green buildings in the GVRD.

- Develop an accepted process for demonstrating equivalencies of green building practices and innovative technologies until long term changes to the BC Building Code and local bylaws are carried out
- Develop an integrated permitting process for green buildings to provide design teams with an opportunity to present the whole project to municipal staff and allow regulators to make decisions about the entire project
- Reduce GVRD sewer DCC charges for green buildings to reflect the lower infrastructure servicing of green developments, and increase charges for conventional building projects. Use this project as a starting point to amend municipal DCCs
- Build all GVRD and municipal new buildings and major retrofits to LEED standard and strive for highest possible level of certification to demonstrate the benefits of green building design, practices and technologies to the building industry, and to local taxpayers through reduced long-term operating costs
- Develop a strong business case for green buildings through post-occupancy evaluation of existing green buildings and demonstration projects in the private sectors
- Establish a minimum energy performance for building at the municipal level through energy by-laws and /or by incorporating MNECB and/or ASHRAE 90.1 in the BC Building Code

Impacts of the Program

The direct effect of education/outreach programs on changes to design and construction practices are typically difficult to measure. The green building program is being evaluated on an ongoing basis by focusing on indicators which provide an overview of the progress made.

Market Reach Number of professionals reached through direct contact. The GVRD estimates that in 2004, via its 51 events, it has reach 8% of the industry professionals in BC.

Market Uptake Growth in the number of LEED registered or certified green buildings in Greater Vancouver. The number of LEED registered and certified buildings in the lower mainland has double every year since 2001. In 2004, LEED certified buildings represented 6% of the total institutional/commercial construction market.

Post-Occupancy Evaluation Scientific assessment of completed green buildings to verify actual green building performance, tenant comfort and environmental benefits. A post occupancy evaluation of completed LEED buildings is planned for 2006.

Monitoring of Completed Projects Documenting and monitoring projects on an ongoing basis to verify improvements in building performance, cost savings and environmental benefits. Completed green buildings in the GVRD have demonstrated significant and multiple environmental benefits while offering savings to owners.

Evaluation of Education Initiatives They will be evaluated to determine to what degree these approaches translate into changes in design practices. The GVRD website and programs are well received by the building industry. The BuildSmart Green Building Product Directory is one of the most visited pages of the entire corporate GVRD website. A more detailed review of the BuildSmart program is planned for 2006.

Human & Financial Resources Allocated

The GVRD currently has a team of 3.5 professionals working on the numerous components of their BuildSmart Program.

Helen Goodland LEED AP Helen manages the BuildSmart program and coordinates the GVRD’s green building outreach efforts. She is a UK-registered architect with 15 years experience designing and building green buildings in Canada and



Human & Financial Resources Allocated

cont

around the world. She also has a Master's in Business Administration. Helen is an experienced technical educator and provides a wide range of technical and business advice to designers, contractors and building owners for all types of buildings.

Craig Shishido LEED AP Craig offers knowledge and experience in building operations, energy management, and on building retrofits for energy and resource efficiency. Craig has a diploma in chemical and environmental science and has 12 years of process engineering experience along with 4 years in environmental regulatory enforcement. Craig is particularly interested in the synergies between building operations and industrial and manufacturing processes.

Jessica Woolliams LEED AP Jessica has recently joined the GVRD from Harvard University where for the past three years she managed a variety of programs and projects focusing on green buildings, energy reduction and renewable energy. She has lectured at Harvard and given many presentations to professional, academic, political and civic organizations. From 1999 to 2001 Jessica worked as a green building consultant in British Columbia for such clients as University of British Columbia, the Province of British Columbia's Green Buildings BC (GBBC) program and the Ministry of Finance and Corporate Relations. She has published numerous papers and reports for civic and academic purposes. She has a Masters Degree in Urban Planning and a Bachelors Degree in English Literature and Urban Geography from UBC, and a diploma in Building Technology from BCIT.

Additional Resources

1. **A Business Case for Green Buildings in Canada** Industry Canada 2005
2. **The Costs and Financial Benefits of Green Buildings** A Report to California's Sustainable Building Task Force (October 2003)
3. **Costing Green: A Comprehensive Cost Database and Budgeting Methodology** Davis Langdon (July 2004)



Natural Capital Centre



HOLST ARCHITECTURE



City of Portland - G/Rated Program

www.green-rated.org

G/Rated is Portland's Office of Sustainable Development's (OSD) comprehensive Green Building Program. Created in partnership with the Sustainable Development Commission and the input of over 160 local developers, architects, engineers, affordable housing providers, advocacy groups, and city employees in 1999, G/Rated has grown to be one of the most comprehensive and credible resources for green building practices and research in the US.

Purpose of Existing Program

Two fundamental goals drive the G/Rated program:

- Expand market demand by educating building industry professionals and the public about the benefits of green buildings
- Make green building practices easier to implement by reducing regulatory and financial barriers while developing technical services and resources for building industry professionals

In order to achieve these goals, Portland created the G/Rated Green Building Program. Housed in the City's Office of Sustainable Development, G/Rated is accelerating the adoption of cost effective green building practices through outreach, technical assistance, policy and research, and training.

Office of Sustainable Development OSD's mission is to provide leadership and contribute practical solutions to ensure a prosperous community where people and nature thrive, now and in the future. OSD promotes informed choices to increase the use of renewable energy and resources, reduce solid waste and conserve energy and natural resources and prevent pollution and improve personal and community health.

Before the OSD created G/Rated, the City asked the public to help define the local government's role in green buildings. The community responded by outlining the following priorities:

- Provide quality education in green building practices
- Organize events for Portlanders to visit and experience green buildings first-hand

- Provide technical assistance to those getting started
- Help green projects with permitting issues
- Help City agencies green their construction projects
- Provide seed grants to promote green buildings
- Connect people with green building resources, like suppliers and services

This consultation process helped shape the first of two strategic plans that are the programmatic road maps for G/Rated. By providing both general and technical information about green building practices, G/Rated is designed to provide key leadership to help accelerate the adoption of green building practices as the industry standard, and to advance the City of Portland down the path to a more sustainable future.

Historical Time Line

2001 - City of Portland Green Building Policy The policy outlines strategies for the following project types:

- LEED Certified: Buildings constructed, owned and managed by the City of Portland, including new construction, major retrofits, interior tenant improvements, operations and maintenance, and infrastructure
- LEED Certified: Publicly-funded, private-sector development through Portland Development Commission encouraged to meet the 'Certified' level of LEED rating system
- Private sector development: Encourages, on a voluntary basis, green building design and construction.

PROGRAM

G/Rated Green Building Program

THE CITY OF PORTLAND OFFICE OF SUSTAINABLE DEVELOPMENT

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G/RATED - THE GREEN BUILDING PROGRAM

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Historical Time Line cont

March 2004 - Green Investment Fund The Office of Sustainable Development developed a competitive grant program to support building projects designed to achieve a high level of environmental performance, durability, and safety and health through integrated design, emerging technologies and best design practices.

To date, the Green Investment Fund has awarded a total of 27 commercial grants, 14 emerging technology grants, 26 residential grants and two affordable housing grants, totaling over 1.7 million square feet. A second round of GIF funding was secured in 2004. \$2.5 million dollars will be distributed over 5 years to innovative green building projects in Portland.

April 2005 - Portland Green Building Policy: A Status Report and Recommendations The Portland Green Building Policy is strengthening environmental development practices to further the City's leadership in the green building sector. Portland is the third city in North America to adopt LEED 'Gold' standards for civic buildings. In addition, all publicly subsidized development is now required to meet LEED 'Silver' certification.

Components of Existing Program

G/Rated is Portland's gateway to green buildings, offering initial consultation specific to the proposed green building project. It offers green building strategy and direction on a host of green building issues including permitting, energy and water efficient systems, healthy indoor air quality, recycling, reuse, and sustainable material choices. The initial consultation provides practical ideas, professional recommendations and directions to locally available products and services. Here is a brief description of Portland's Green Building Policy:

City Facilities Increase LEED NC threshold for all new facilities projects from "Certified" to "Gold" requiring at least:

- 75% of all construction & demolition waste is recycled
- 30% beyond City of Portland's Stormwater Management Manual baseline code requirements
- 30% water savings beyond the Energy Policy Act of 1992 baseline code requirements
- 30% energy savings beyond Chapter 13 of the Oregon Structural Specialty Code baseline requirements
- Building commissioning as required by the State Office of Energy to be eligible for the Sustainable Building Business Energy Tax Credit

Major Retrofits and Existing Occupied Buildings All retrofits and existing occupied buildings should achieve LEED EB "Silver" standards. Tenant Improvements and leased facilities will achieve LEED Commercial Interior (CI) "Silver" and/or G/Rated Tenant Improvement Guide certification. The City will also incorporate ecoroofs and Energy Star rated roofing when practical into all operations and maintenance guidelines.

City-Funded Private Sector Projects City Council directs the Portland Development Commission (PDC) to adopt LEED NC "Silver" standards for all private-sector development over 10,000 square feet that receive financial assistance from PDC and other public agencies (including value of fee or tax waivers) totaling over \$200,000 or 10% of the total project costs.

Public Infrastructure The construction and maintenance of public infrastructure (utilities, streets) will incorporate green practices established by the Water Bureau, Bureau of Environmental Services, Portland Office of Transportation and Office of Sustainable Development.

Private Sector Development All private-sector projects meeting LEED Silver standards will receive special technical assistance from the City's Bureau of Development Services through their established "Process Management" program. Additionally, projects can access the City's nationally recognized G/Rated technical assistance program and Green Investment Fund.

Incentives

INCENTIVES FOR COMMERCIAL DEVELOPMENT (ADDITIONAL INCENTIVES ON G/RATED WEBSITE)

City of Portland Green Investment Fund In the spring of 2005, the City Council passed a resolution to replenish the Green Investment Fund.

"The City's Green Building Policy has helped transform the development industry in Portland. We now have the most LEED-registered projects in the country"



Incentives cont

A five year, \$2.5 million grant program, the Green Investment Fund sponsors a variety of green building projects and is funded jointly by the City’s Office of Sustainable Development, the Bureau of Environmental Services, the Water Bureau and the nonprofit Energy Trust of Oregon.

The Investment Fund’s primary goals are to accelerate the market penetration of high-performance, resource-efficient development; perform in-depth measurement and verification research of the performance of the funded green buildings and systems; and then showcase the projects so that others may be inspired to make similar commitments to sustainability.

INCENTIVES FOR RESIDENTIAL DEVELOPMENT (ADDITIONAL INCENTIVES ON G/RATED WEBSITE)

City of Portland Multifamily Weatherization Program The Office of Sustainable Development provides personal assistance to rental property owners in obtaining energy evaluations and taking advantage of cash incentives and tax credits available for making energy-efficient improvements.

Detailed Recent Program Expansion

To reflect the changes in the marketplace, advances made in green building strategies, application, and competency and to ensure that Portland continues to be a national leader in green building, the Office of Sustainable Development recommends the following as of April 2005:

CITY-OWNED NEW CONSTRUCTION AND MAJOR RETROFITS

LEED Gold The City is implementing a target of LEED Gold for all new City-owned facilities. Experience shows that the incremental costs for LEED Gold level buildings are negligible and that they are a cost-effective investment, especially for long-term building owners like the City of Portland. The high performance of LEED Gold buildings yields an array of public and private benefits.

Policy augmentation will require no programmatic or structural changes. LEED implementation will remain the same but project teams will be required to strategize up-front on how to earn the extra points required for a Gold rating. Private sector feedback affirms that this poses little additional challenge and that adherence to Portland’s purposeful development standards frequently yields Certified-level buildings. Further, new LEED products that address a variety of building types will provide increasing flexibility in LEED implementation. A LEED Gold standard will draw national and local attention and, on the platform of the last three and a half years of work, provide an impetus for future educational and practical policy implementation efforts.

Ecoroofs The city requires design and construction of all new City-owned facilities to include an ecoroof with at least 70% coverage AND high reflectance, Energy Star-rated roof material on any remaining non-ecoroof surface area; OR, Energy Star-rated roof when an integrated ecoroof/ Energy Star-rated roof is impractical.

Portland G/Rated Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
Terry Miller G/Rated Coordinator	Green Building Policy embraces all civic buildings	4	LEED Gold for city-owned facilities	11	49



Detailed Recent Program Expansion cont

A recent Ecoroof Study demonstrates that ecoroofs provide an array of public and private benefits including building energy consumption, urban heat island reduction, and greater than 50% annual stormwater runoff reduction.

Ecoroofs have also been demonstrated to prolong the roof's useful life two or threefold thus avoiding costly roof replacement projects. Project teams will work with the Green Building Advisory Team to determine the practicality of ecoroof application on a case by case basis.

Portland Development Commission (PDC) Projects For all new construction projects that receive PDC funding, increase LEED certification from "Certified" to "Silver".

Local and national experience demonstrates that green affordable housing projects that are marked by healthy indoor environmental quality, lower utility costs, increased occupant control and community orientation are both attractive to tenants and cost effective. This strategy presents an opportunity for the City to manifest its balanced commitment to Portland's social, economic, and environmental health.

EXISTING BUILDINGS - MAJOR RETROFITS & TENANT IMPROVEMENTS

LEED for Existing Buildings The City requires that all occupied, existing City-owned facilities achieve LEED-EB "Silver". LEED-EB is a user-friendly system designed to allow incremental improvements that augment building performance over time.

The magnitude of financial benefits that are realized due to enhanced building operational efficiency and worker productivity (two core objectives of LEED-EB) is correlated with duration of building ownership.

Tenant Improvements All tenant improvements in City-owned facilities are required to achieve LEED for Commercial Interiors (CI) "Silver" AND/OR G/Rated Tenant Improvement Guide certification.

Ecoroofs All roof replacement projects on City-owned facilities are required to install an ecoroof AND high reflectance, Energy Star-rated roof on any remaining non-ecoroof roof surface area; OR, when an integrated ecoroof/Energy Star-rated roof is impractical, install an Energy Star-rated roof.

LEASED FACILITIES

Tenant Improvements All tenant improvements undertaken in all City-leased facilities are required to achieve LEED CI "Silver" AND/OR G/Rated Tenant Improvement Guide certification. Well designed and implemented green tenant improvements and high performance green buildings reduce utility costs for the City, improve worker productivity, foster healthy indoor environmental quality, and reduce negative building construction and operation-related impacts on the natural environment, hence supporting the public good. Preferring green buildings in space leasing also sends a market signal to the real estate community that reiterates the City's commitment to green buildings.

FACILITIES OPERATIONS & MAINTENANCE

City Facilities Operations & Maintenance The City requires all operations and maintenance practices at City-owned facilities to apply the City's Green Building Operations and Maintenance Guidelines under development by the Bureau of General Services.

The requirements apply to all facilities, regardless of size and contract type. The guidelines will be synchronized with ongoing maintenance requirements in the LEED EB rating system. The Guidelines are to be developed by the Bureau of General Services as the tool by which City O&M practices meet the Green Building Policy Directives of the City.

PUBLIC INFRASTRUCTURE

Sustainable Infrastructure Team The City should support PDOT's efforts to revitalize the Sustainable Infrastructure Team (SIT). The SIT should facilitate the development of a sustainable infrastructure best practices manual and baseline requirements for public infrastructure to advance best practices for the design, construction, and maintenance of public right-of-ways in Portland. The manual should identify opportunities within the typical cross section of the urban right-of-way: street and sidewalk, utilities, stormwater infrastructure, landscape and streetscape elements without compromising safety, accessibility, longevity, and aesthetics.

The Green Building Policy directs all bureaus involved in infrastructure development to incrementally incorporate best practices and determine the need for a relevant sustainability rating system. Revitalization of the SIT team will enable the continuation of this effort as well as provide a centralized resource that connects the infrastructure bureaus.



Detailed Recent Program Expansion cont

TOOLS, RESOURCES AND TRAINING

A&E Contracts All City Architecture & Engineering services contracts must follow the Bureau of Purchases' "Professional and Technical Expertise Architecture & Engineering Request for Proposals for LEED Projects" (A&E RFP). The City recently completed the A&E RFP for LEED projects which directs all contractors to design and construct all new facilities and major retrofits to meet LEED and other obligations contained within the Green Building Policy.

Training The City requires green building training for all relevant City project managers, and maintenance and operations staff. Training is crucial to creating the capacity within bureaus and would drastically increase the ability of other bureaus to implement the Policy.

Affordable Housing Guidelines OSD is currently partnering with PDC, Bureau of Housing and Community Services, Housing Authority of Portland and other affordable housing service providers to update PDS's Affordable Housing Green Building Threshold and Voluntary Guidelines to reflect the rapidly changing financial, scientific and technical landscape of green buildings.

BUILDING AND ZONING PLAN REVIEW + PERMITTING

Bureau of Development Services (BDS) The City requires Process Management for all qualified public and private sector LEED Silver-registered building projects. Through LEED certification, the City is encouraging developers to design and build using the highest quality development practices. Such practices characterize green buildings and help reduce impacts to Portland's infrastructure and environmental quality over time.

Code Conflicts Building and zoning code and process conflicts that inhibit green building practices and technologies are identified through a facilitated process with relevant public and private stakeholders.

The Bureau of Development Services has made significant strides to improve their services and reputation in the development community. However, persistent code issues coupled with structural and procedural barriers stemming from the various layers of regulation can inhibit innovation and cause developers to meet only the minimum building code.

Gathering all of the relevant stakeholders at the same table with guidance from a green building codes expert provides a venue to identify specific code, structural, and procedural barriers to green buildings and create a platform for continued work in this area.

Staff Training An inter-bureau training program for relevant City development review and inspection staff should be created. Bureaus should work cooperatively to identify green building knowledge for effectively promoting and/or enabling private green building in specific service areas and for training relevant staff.

Marketing An integrated marketing effort to promote the City's green building services is to be created. Marketing should reflect the connectivity between G/Rated and BDS, adding beneficial exposure for both bureaus.

Opportunities and Challenges

The primary challenge identified by the City of Portland centers around education. Awareness and education need to be key parts of the implementation policy for a green building policy. For example, when the City identified a wave of private new construction on the horizon, policies were targeted initially to that kind of construction. A number of public consultation sessions were held, looking for input from a wide cross-section of the industry and general public. Resources were allocated to ensure that all aspects of the proposed programs would receive wide acceptance.

As mentioned, the City initially focused on private new construction; resources were not available to spread the policy more broadly at any one time. Experience suggests that it is also prudent to focus significant efforts in the area where the greatest impact will be felt. Lessons learned from the first efforts can ensure that future stages of policy development will be better still.

The experiences of Portland also indicate that it is necessary to include green building policy as part of a larger policy discussion. Without the context of infrastructure improvements required or other planning issues identified, the green building policy may not be well targeted to make its greatest impact. For example, storm water treatment on site with bio-swales, detention ponds or green roofs may offset or delay required infrastructure upgrades. It is obviously important to ensure that both those in charge of the infrastructure planning and green building policy coordinate to prioritize spending and resources wisely. In addition, urban planning choices can be improved by considering green building issues.



Opportunities and Challenges cont

Portland benefited greatly from discussing progress, challenges and pitfalls with others in nearby cities who were following a similar path. Seattle's and Vancouver's experiences and lessons learned were shared and provided great insight to the Portland team. While these three cities have been North American leaders in development of green building policy, there is still much to be gained by individual cities sharing their experiences publicly. In addition, higher levels of government that are also developing green building policy can provide resources and support. It is important to coordinate so that programs are complementary.

Impacts of the Program

In Portland, there has been significant growth in green building expertise including builders, architects, engineers, systems and materials manufacturers, energy and environmental consultants, suppliers of reusable building materials, and landscape architects. Oregon, which currently has the most LEED certified buildings in the United States, is fast becoming known for its green building expertise and leadership. By promoting and applying green building practices, the City is supporting and stimulating further growth to help drive down the cost of innovative building materials, energy systems, and other green building components.

Portland's private development sector has been quick to adopt LEED and has played a significant role in positioning Portland as a leader in green buildings. Unlike Seattle where a majority of green building is being driven by the City's \$1 billion in municipal facilities construction, green building in Portland is primarily in the private and institutional sectors. Portland boasts the most LEED projects and square footage per capital in the nation and is home to 49 registered projects, 11 certified projects and some 512 LEED-accredited professionals (more than 80% of the state's total).

Local private sector experience shows that the incremental costs associated with LEED decrease with experience and that LEED projects can, in fact, cost less. One LEED-savvy developer who has consistently raised the bar with each project now claims "LEED does not have to cost more." The tracking, documentation and extra design costs associated with LEED can be offset by the resultant quality of design that downsizes or eliminates typical building systems and enhances operational efficiency. This same developer is now achieving these savings in LEED Platinum projects.

Human & Financial Resources

Resource allocation is a recurring theme with virtually all of the cities examined in this report. Both the need to allocate resources effectively to ensure the greatest impact and the need to assemble an appropriate team to use them were items raised by Portland. They have a team of four people in their office who have a broad range of experience, ensuring that both technical and non-technical issues are managed.

The G/Rated Program has recently become a part of a larger group (The Office of Sustainable Development). This change will facilitate access to the administrative resources the program currently requires. Communication and administrative resources were identified as essential items that have to be planned for and provided to ensure a successful program.

The G/Rated program is funded through residential and commercial solid waste fees, grants and contracts. Sponsorships and tuition pay for additional programs and events, such as the annual Build It Green! Residential Home Tour and Information Fair, and Rethink: Innovation in Ecological Design and Construction Training Program.

With an operating budget of approximately \$450,000 US dollars, the Program is primarily staffed with four key staff positions. The program can also borrow capability staff from the Office of Sustainable Development which provides leadership and contributes practical solutions to broader sustainable issues for the City of Portland. The following section provides information on the program's key individuals.

Terry Miller – G/Rated Coordinator
Greg Acker - Architect
Mike O'Brien – Green Building Specialist
Stephanie Swanson – PR and outreach

Terry Miller Terry has worked and studied in environmental management for four years. For the past two years, he has been with the Office of Sustainable Development, coordinating research, policy, events in the G/Rated Green Building Program. Prior to working at OSD, Terry worked in a variety of environmental disciplines ranging from native landscaping to biological surveying and has also earned his Masters degree in Environmental Management from the Yale School of the Environment. Terry currently coordinates G/Rated program activities, leads policy and program development, and manages the City's Green Investment Fund.



Human & Financial Resources cont

Greg Acker Greg has been designing buildings that incorporate passive-solar design with resource efficiency and low toxic construction since 1979. His award-winning work includes educational, commercial, ecotourism and resort, multi-family and single-family residential buildings. Between 1990 and 1995, Acker owned a construction company focused exclusively on resource and energy-efficient design-build projects. Most recently, he was an Environmental Design Consultant to PGE's Earth Advantage Program and a Sustainable Design Consultant for Ecotrust's award winning Natural Capital Center in Portland. Presently Greg provides technical assistance and training for the G/Rated program and is an Adjunct Architecture Professor at the University of Oregon's Portland Center.

Mike O'Brien Mike comes to G/Rated from the Northwest Energy Efficiency Alliance. His most recent project at the Alliance, 'betterbricks.com,' is a website and outreach campaign to promote awareness of the health and productivity advantages of high efficiency buildings. Mike helped create Portland General Electric's Earth Advantage program, which has sparked numerous green buildings and homes throughout the city. He and Greg Acker worked together on the HERE Today. Mike is regionally recognized as an authority on residential energy efficiency and indoor air quality. He provides technical review and program development services for the G/Rated program.

Stephanie Swanson Stephanie has more than thirteen years of journalism and corporate communication experience in a variety of industries, including energy, financial, food and beverage and telecommunications. She was an Emmy award winning journalist at CNN prior to moving to Portland in 1994. In Portland she worked at KPTV-12 and Cole and Weber/Red Cell, an integrated marketing firm where she helped create and promote betterbricks.com, a web-based tool for energy efficient building practices. Stephanie oversees the Green Building Division's energy efficient building practices. Currently, she manages the Green Building Division's communication and outreach efforts to increase the visibility of G/Rated activities and promote green building benefits to the community.

Additional Resources

1. **City of Portland Green Building Policy 2001**
2. **Portland Green Building Policy A Status Report and Recommendations (April 2005)**



Richmond City Hall



Hotson Bakker Architects and
Kuwabara Payne McKenna Blumberg Architects



City of Richmond - High Performance Building Policy

www.richmond.ca

Purpose

The City of Richmond does not have a formal green building program. Instead, the City has a many environmental policies including a Sustainable “High Performance” Building Policy. Virtually every department of the City is involved in developing policies to protect the environment, delivering environmental programs and creating opportunities for action by groups and individuals within Richmond. Some examples of environmental strategies include:

- Integration of environmental policies into the City’s official community plan
- Integration of community input into decision-making through the City’s advisory committee on the environment
- Leading by example and greening our corporate practices, including the building of an environmental award winning city hall and implementation of a City environmental purchasing policy and guidebook
- Greening the built-form of the community and encouraging environmentally-friendly life-style choices such as waste minimization and use of alternative modes of transportation
- Protecting natural resources through City Parks and Environmental Sensitive Areas (ESA) designations
- Understanding and monitoring environmental quality through the City’s State of the Environment Reports

The City is hopeful that the practice of continual improvement and collaboration with other levels of government, business and the Richmond community will ensure that a healthy environment will exist well into the future. The recently adopted Sustainable “High Performance” Building Policy complements environmental policies already adopted by the municipality. The Policy will help the City of Richmond meet the ultimate goal of their vision statement.

The City hopes that the Sustainable “High Performance” Building Policy will trigger various other green building projects within the City’s public and private sectors.

Historical Time Line

1991 - Energy Conservation Policy This policy ensures that all new facilities incorporate energy efficient features and that the equipment within buildings reflects energy efficient fixtures.

1998 - City Vision, Mission & Core Values The Strategic Management Plan outlines a vision-driven strategy for the City of Richmond to manage change. Together, the vision, mission, and core values provide the anchor for organizational priorities, strategies, and actions to be taken by the City.

The Vision statement for the City of Richmond is meant to provide a clear image of where the organization is heading over the next decade or two. It is meant to capture the spirit of the organization and to inspire its workforce and partners to work towards a vibrant future. The City’s vision is “For the City of Richmond to be the most appealing, livable, and well-managed community in Canada.”

2000 - Green Purchasing Guide Practicing environmental purchasing is an important way that the City of Richmond demonstrates its commitment to its island environment. To assist staff in selecting products and services that promote a healthy environment, the City of Richmond has adopted an Environmental Purchasing Policy and an Environmental Purchasing Guide. While created for Richmond, the Environmental Purchasing Guide was designed to assist municipal staff across British Columbia.

POLICY

City of Richmond - Sustainable “High Performance” Buildings

**CITY OF RICHMOND POLICY PLANNING DEPARTMENT
AND FACILITIES DEPARTMENT OF ENGINEERING AND PUBLIC WORKS**
NEW BUILDINGS David Naysmith | 604-233-3312 | dnaysmith@richmond.ca
EXISTING BUILDINGS Phil Hogg | 604-244-1243 | phogg@richmond.ca



Historical Time Line cont

2002 - Environmental Management Strategy The City of Richmond is one of the few municipalities with an active performance management framework and system. The Environmental Management Strategy (EMS) was developed by municipal staff in 2002 to act as a strategic action plan and coordinating mechanism.

2005 - Sustainable “High Performance” Buildings Policy Council recently adopted a policy for Sustainable “High Performance” Buildings. The policy ensures that new buildings and major renovations will be evaluated based on considerations of life-cycle costing and initial financial investment requirements.

Components of Existing Policy

Undertake Comprehensive Financial Consideration Projects for new buildings and major renovations will be evaluated based on considerations of life-cycle costing and initial financial investment requirements.

Incorporate High Performance Attributes into Building Design + Construction to the Maximum Extent Possible LEED BC will be used as the standard by which to assess building performance. LEED Gold accreditation is the desired standard of building performance for new City buildings greater than 2000 sq. M. (approximately 20,000 sq. ft.).

The City will seek to meet the performance standards of LEED Silver certification as a minimum requirement for major renovations to existing facilities and new City Buildings smaller than 2000 sq. M. (20,000 sq. ft.), but may not necessarily seek formal accreditation.

Pursue Continual Improvement Through Building Retrofit and Efficient Building Maintenance Existing facilities and equipment will be upgraded to higher efficiencies as budgets and circumstances allow, and where changes offer a simple payback of no more than five years. Equipment will be maintained to energy-efficient standards.

Foster Awareness and Innovation A continuous education program in resource efficiency procedures and practices will be maintained. All employees will be encouraged to suggest and initiate projects that will save energy and optimize efficiencies in other resource areas (natural and financial).

Undertake Regular Monitoring and Reporting Corporate energy consumption and the extent to which the City has met its LEED building objectives will be monitored and reported on a regular basis using existing City reporting tools.

Incentives

The City of Richmond provides no direct incentives to the building community for green buildings.

However, the City is hoping that the City’s vision of being the most appealing, livable and well managed community in Canada, along with its numerous strategies will demonstrate leadership and will influence green building practices in the private sector.

Plans for Future Policy Expansion

Since the Sustainable “High Performance” Building Policy is new as of January 2005, there is no other formal expansion planned for the immediate future.

Opportunities and Challenges

Opportunities Richmond staff is now working on two further LEED civic facility projects in the design phase: a community safety headquarters building, a firehall as well as on the Olympic speed skating oval. For these projects, the City is increasingly relying on Life Cycle Assessment (LCA) to inform design decisions.

Challenges The City is challenged to find sources of funding to support LCA for municipal projects. LCA requires a shift in project budget to finance sustainable building strategies with higher capital costs in order to produce significant operational (financial and environmental) “savings” for the entire life of the facility.

“Virtually every department is involved in developing policies to protect the environment, delivering environmental programs and creating opportunities for groups and individuals”



Results or Impacts of the Policy

Another challenge facing the City is that they have yet to have the opportunity to explore sustainable development beyond the building scale despite the fact that the larger neighborhood scale offers great potential for green performance.

Richmond’s achievements in applying ecological principles to its corporate facility design, planning, and purchasing can be categorized into two realms of activity: retrofit projects, and new building policies and projects.

Retrofit Projects Up to now, Richmond’s emphasis on energy and water conservation has been focused on retrofits of existing facilities, mostly through BC Hydro’s Power Smart program.

The introduction of an Energy Conservation Policy in 1991 for the City marks the beginning of Richmond’s commitment to corporate ecological responsibility. The Policy commits the City to the efficient use of energy in the planning and operating of all its City-owned facilities. It requires that life cycle costs be considered and that high efficiency products and systems be preferred when making purchasing decisions.

The Policy is based on the cost recovery premise that retrofits will pay for their premium costs over the usable life of the technology. While the Policy commits the corporation to technological upgrades and equipment maintenance and repair, there is an equivalent emphasis on staff decision-making, continuous education, and conservation behavior. The City’s Policy encourages “all employees to suggest and initiate projects that will save energy and monitor energy consumption performance.”

As part of the program, BC Hydro performed an energy audit on the City between 1997 and 2002 and found that it had reduced energy consumption (electricity usage per square foot) by 33%, largely as a result of a cost saving strategy to redistribute resources to other capital projects. In fact, the corporation saved \$500,000 on average in annual electricity costs. During this period, Richmond implemented lighting retrofits, redesigned lighting in parkades, and installed direct digital controls at various City facilities to control heating, ventilation and air conditioning.

In 2003, Richmond was designated the first Power Smart certified municipality and in fulfillment of this role has taken on another performance contract to reduce energy consumption by 15% over the next four years. Through Power Smart, Richmond has advanced solutions that emphasize responsibility, participation, and collaboration as well as technology.

New Buildings As the Sustainable “High Performance” Building Policy has been recently adopted by council, it is still too early to fully quantify the results of the policy. However, a few new city owned facilities as well as the Olympic projects such as the speed skating oval are already exploring LEED certification. These current projects offer great opportunity to have legacy green buildings for the City of Richmond.

Human & Financial Resources Allocated

There is no full-time or part-time staff person allocated to green building issues, rather the corporate support for green buildings is embedded in the vision statement of the City. It is the goal of the City that the green building policy is embraced by all parties involved in shaping the municipal built environment.

Richmond Sustainable “High Performance” Buildings Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
David Naysmith (New buildings) Phil Hogg (Existing buildings)	Sustainable “High Performance” Buildings	0	LEED Gold for new city buildings >2000 sq. M. LEED Silver for major renovations and new city buildings < 2000 sq. M.	0	3



Human & Financial Resources Allocated cont

The City believes that a main objective of high performance buildings is that they are cost effective and reduce overall management costs. The decision to build green buildings will offer the municipality savings in operating costs; by adopting the Policy, the City of Richmond expects a return on their investment.

This is an interesting approach to funding a green building program. Perhaps municipalities and regional districts should fund their green building program from the funds saved in lower operational costs. This would potentially transform the economic equation related to the establishment and maintenance of green building programs to a savings/revenue rather than an increase in cost related to a green building program staff and maintenance costs.

Additional Resources

1. **Energy Conservation Policy** City of Richmond 1991
2. **Green Purchasing Guide** City of Richmond 2000
3. **Sustainable “High Performance” Buildings** City Owned Facilities – Policy
4. **Corporate Ecological Responsibility & Sustainability Performance Management in Local & Regional Government** Barbara Everdene, UBC Master’s Thesis, School of Community and Regional Planning



Notes



A large green rounded rectangle containing horizontal dotted lines for writing notes.



Rogers Elementary School



HUGHES CONDON MARLER : ARCHITECTS



District of Saanich - Green Building Policy

www.gov.saanich.bc.ca

Purpose of Existing Policy

The District of Saanich does not have a formal green building program. However, the District has a Green Building Policy. The overall purposes of the Green Building Policy are:

- To demonstrate commitment to environmental, economic, and social stewardship
- To provide leadership and guidance to encourage the application of green building practices in private sector development

The District of Saanich Green Building Policy is intended to:

- Reduce greenhouse gas emissions and reduce energy use
- Reduce the solid waste stream
- Reduce water use

Historical Time Line

2004 - Green Building Strategy In the Summer of 2004 Council appointed a Committee to develop a "Green Building Strategy".

April 2005 - Green Building Policy A recent report from the Director of Planning recommends Council adopt the "Saanich Green Building Policy" as Phase 1 of the District's Green Building Strategy.

June 2005 - LEED Silver or Gold A motion to adopt the recommendations in the above report was brought before the Committee Of The Whole. However, the motion was amended from LEED Gold as a minimum level of performance for new civic buildings to LEED Silver or Gold with the decision to be taken by Council on a case by case basis.

The amended motion was adopted as the standard rating for the Green Building Policy. Councils now and in the future, will be able to decide on a project by project basis what point standard can be reasonably achieved.

Policy Statement

The District of Saanich will show leadership in green building design by:

- Incorporating green building practices into municipal facilities of all sizes that are developed, owned or managed by the District
- Undertaking life-cycle costing analysis prior to tendering for all construction and retrofit projects larger than 500 square metres undertaken by the municipality
- Providing opportunities for additional design and capital costs for green municipal projects provided life-cycle costing can demonstrate a minimum annual 10% return on the capital investment
- Meeting a requirement of LEED Silver or Gold (including full registration and certification under the Canada Green Building Council) for all new construction and additions of civic buildings larger than 500 square metres
- Continuing to undertake operational retrofits of existing facilities to improve energy and water efficiencies
- Considering LEED certification for major renovations of existing buildings under LEED-NC or the new category LEED-EB (existing building)
- Working cooperatively with other jurisdictions to promote green building design and practices in a consistent way in the region
- Encouraging learning and awareness of green building activities both within the organization and throughout the wider community

POLICY

Saanich Green Building Policy – Phase 1 of Saanich Green Building Strategy

PLANNING DEPARTMENT

Pam Hartling Research Planner | 250-475-5494 Ext 3466 | hartlinp@saanich.ca



Policy Statement cont

- Considering the development of incentives to encourage the private sector to adopt green building practices
- Revising Saanich processes and policies as appropriate
- Recognizing achievement and excellence in private sector green building initiatives

The District of Saanich believes that its Green Building Policy will modify the way municipal (and ultimately all) buildings are designed and constructed. The Policy supports the following three important elements that facilitate the implementation, design and construction of green buildings.

Integrated Design Process and Environmental Goal Setting Successful green buildings depend on an integrated approach to design. In a “whole-building” design process, each decision is made through this process in the context of other decisions to which it is related. A variety of integrated building issues can be resolved early in the design process with solutions that yield high performance efficiencies.

The key is to establish an integrated, cross-disciplinary design team, made up of experts and stakeholders impacted by the building. The team begins working together at the pre-design phase. Additionally, at a pre-design workshop, the team should establish environmental performance goals for the building. This goal setting workshop allows a common vision to form for the project. Goal setting is very useful tool to establish specific performance targets used to measure success at project completion.

Life-Cycle Analysis (LCA) The benefits of green building initiatives must be looked at from a long-term perspective. Initial capital costs are only part of the total cost of a project and should be considered within the context of the cost to operate and maintain a building. Life-cycle analysis is essential to green building practices as it reviews all related costs to design, construct, operate and maintain a facility and brings them to a common comparative basis. LCA also assesses the health and productivity of building occupants.

LEED Building Rating System Leadership in Energy and Environmental Design (LEED) is a voluntary, consensus-based rating system for high-performance, sustainable buildings. A Canadian version of the rating system has been developed and is being administered by the Canada Green Building Council (CaGBC). LEED is an appropriate rating system for green buildings because it:

- Has significant momentum as the industry standard
- Offers the credibility of third-party verification
- Promotes whole-building, integrated designed
- Has an administering body that ensures the system will be maintained, revised and updated as necessary is relatively simple to implement
- Is not overly prescriptive
- Takes into account local climate and standards

Incentives

No incentives are incorporated into the policy as adopted at this time. The development of incentives to encourage the private sector to adopt green building practices will be considered for Phase 2. The District will be researching precedent from other municipalities and communication between municipal officials will be encouraged to clearly identify which strategies are successful.

Plans for Future Program Expansion

Phase 2 The second phase of the District of Saanich Green Building Strategy is currently being developed. The goal is to implement a voluntary, incentive-based green building strategy for private sector development. Further program expansion plans include disseminating web based information related to Saanich’s Green Building Policy as well as to continue with education, training and awareness building to staff, the public, and the private sector to promote and support green buildings.

A Green Building Award As part of a future phase an award will be established to recognize excellence in green building design and practice within the District of Saanich. This award will contribute to the promotion of green building strategies in the private sector.

“Demonstrate the District of Saanich’s commitment to environmental, economic, and social stewardship and to provide leadership and guidance to encourage the application of green building practices in private sector development”



Opportunities and Challenges

Opportunities The Green Building Policy is currently seen as a very important industry and public awareness transformation tool. Compared to major metropolitan areas, Vancouver Island is still at an early stage of adopting green building practices. The District’s Green Building Policy mandating municipal buildings to adhere to third party certified standards is an invaluable first step.

Life-Cycle Analysis is incorporated into the green building policy to ensure accountability to the tax paying public, as it highlights and documents how additional capital costs at the outset of a project are offset by long-term savings over the life of the building.

Inter-jurisdictional cooperation within the region presents opportunities to develop consistent green building strategies and practices, building upon experiences gained elsewhere and sharing the know-how that is developed in the District of Saanich or by others.

Experiences with institutional, non-municipally owned and operated buildings such as the Vancouver Island Technology Park and other green buildings at the University of Victoria or Camosun College’s Pacific Sports Institute (all located within the District of Saanich) contributes to the development of green building expertise in the District.

Challenges It is recognized that basing a municipal policy on LEED provides challenges to projects that have little or no control over site selection, such as additions and renovations. For this reason, the Policy only targets LEED Certified for major renovations.

It is also recognized that basing a policy on a third party verified and administered program (such as LEED) limits the ability of the municipality to mandate, customize or prioritize specific green building strategies that are deemed to be most beneficial to the municipality.

Impacts of the Program

Building Certifications under LEED No capital projects have been completed since the policy was adopted and as such impacts of the program are limited to date. The policy does impact one major capital project which is currently in the design phase, and this project is targeting LEED Gold.

Public Awareness The discussions around and adoption of the Saanich Green Building Policy, as well as related articles in the local press have raised awareness of green building issues in the public realm.

Human & Financial Resources Allocated

At this point there is a minimum allocation of staff and resources from the District of Saanich. The Green Building Policy is fairly new and will require some time to assess whether additional resources should be allocated to it.

At the moment, green buildings are a significant priority for one research planner (Pam Hartling), 2 building inspectors have become LEED accredited professionals and a “Technical Committee” is available as a resource regarding implementation of policies and general green building issues. This committee is made of local experts and interested community members.

Saanich Green Building Policy Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
Pam Hartling Research Planner	Adopting a Green Building Policy for all municipal facilities	0	LEED Silver or Gold for all new civic buildings construction and additions larger than 500 sq. m.	1	1



The Fisher Pavilion



THE MILLER HULL PARTNERSHIP



City of Seattle - Sustainable Building Program

www.seattle.gov/environment
www.cityofseattle.net/sustainablebuilding

Purpose of Existing Programs

This City wide policy on sustainable buildings is intended to demonstrate the City's commitment to environmental, economic, and social stewardship, to yield cost savings to the City taxpayers through reduced operating costs, to provide healthy work environments for staff and visitors, and to contribute to the City's goals of protecting, conserving, and enhancing the region's environmental resources. Additionally, the City helps to set a community standard for green buildings.

Historical Time Line

October 1997 - Sustainable Building Northwest Conference The City of Seattle partnered with Public Technology, Inc. and numerous other organizations to offer the Sustainable Building Northwest Conference.

1997 - Sustainable Building Action Plan The City of Seattle produced its first Sustainable Building Action Plan.

Fall 1997 - Northwest Regional Sustainable Building Action Plan The Urban Consortium Energy Task Force (UCETF) provided a \$74,000 grant to the City of Seattle to develop a Northwest Regional Sustainable Building Action Plan.

February 2000 - Sustainable Building Policy The City's Sustainable Building Policy was unanimously endorsed by the City Council and signed by the Mayor.

June 2000 - Facility Standards The City's Fleets and Facilities Department (FFD) issued the Facility Standards for Design, Construction, and Operations (FSDCO).

May 13 2004 - Sustainable Infrastructure Representatives from Vancouver, Seattle, and Portland met in Seattle to increase awareness of sustainable infrastructure activities and programs in the three cities and to discuss and identify major technical and implementation issues related to sustainable streets and streetscapes in urban areas.

Components of Existing Programs

The Office of Sustainability & Environment (OSE) The OSE provides leadership, tools, information and ideas to help City agencies, residents, households and businesses use natural resources efficiently, prevent pollution, and improve the economic, environmental, and social well-being of current and future generations.

The OSE also coordinates implementation of the policy and reports annually to the Environmental Management Oversight Panel on how well the City's construction projects meet the goal of sustainability.

The Sustainable Building Policy The policy uses the US Green Building Council's LEED Rating System to evaluate the City projects and sets a policy goal of Silver Level performance for City-funded projects with over 5000 square feet of occupied space.

The Green Building Team Created to help coordinate the task of greening City-funded building projects, this team reviews and annually updates the "Seattle Supplements to the LEED Rating System for City CIP Managers"; provides technical expertise on specific sustainable building issues, and coordinates LEED training programs.

To facilitate implementation of the policy, the City's Green Building Team and consultants have developed a series of

PROGRAM

Seattle Public Utilities Sustainable Building Program

OFFICE OF SUSTAINABILITY & ENVIRONMENT (OSE)

Steve Nicholas Director | 206-615-0829 | steve.nicholas@seattle.gov

SEATTLE PUBLIC UTILITIES SUSTAINABLE BUILDING PROGRAM

Lucia Athens Chair, Green Building Team | 206-615-0829 | lucia.athens@seattle.gov

Thor Peterson | 206-615-0829 | thor.peterson@seattle.gov



Components of Existing Programs cont

tools that are available on the city's website. The following list of objectives were compiled from the Green Building Team Charter:

- Increase the green building performance of City capital projects and facilities
- Provide a forum to share information on sustainable design and construction practices among City departments who finance, plan, design, build, remodel, and maintain facilities
- Encourage City departments to balance social, economic, and environmental factors related to project design and construction
- Promote consistency and a common understanding among City departments of sustainable design, construction, and maintenance practices and benefits
- Improve efficiency and effectiveness of departmental operations by identifying and implementing multi-departmental approaches to sustainable building problems
- Promote excellence and innovation in operations involving sustainable building
- Assist the OSE in implementation (project development and programming, design, construction/installation, and operations and maintenance)

Seattle CIP Supplements To facilitate use of LEED by City Capital Improvement Project (CIP) Managers and their design teams, the City's Green Building Team authored the Seattle CIP Supplements. This document provides Seattle-specific information on applying the rating system, directs users to relevant resources, and calls out several additional requirements for City projects. Although written for City CIP Managers, the Supplements have value to anyone applying LEED to a project in the Seattle area.

The City of Seattle's Facility Standards for Design, Construction and operations (FSDCO) The City's Fleets and Facilities Department (FFD) is responsible for 110 facilities and manages the design, construction and operation of many new and renovation projects including the implementation of the Civic Center Masterplan. The facility standards is the first of its kind within FFD and is intended as a cohesive guide for project managers, property managers, crew chiefs, janitors, and architectural and engineering consultants on all FFD facilities. The document links current City policies and preferred materials/equipment, means and methods of design, construction and operation with suggested protocols.

This is not a technical building specification but rather a performance guideline for all of those involved in the building design, construction and operations of our facilities.

Specific areas of interest in the FSDCO include the Sustainable Building Policy, space programming standards, furniture standards, CAD standards, and the Accessibility Design Policy. The purpose of these standards is to provide guidelines to architects and engineers designing new and renovated facilities for the City of Seattle. It is intended to summarize information on what is expected by the City, either by choice or by the specialized nature of the facility, and to avoid historical problems with construction, operations and maintenance. The Facility Standards are now available on line.

Incentives

For both the **LEED** and **BUILT GREEN™** incentive programs, the City will be an active observer, to help develop other cost effective sustainable building services that the City can offer to the private sector. Both incentives programs are funded by Seattle City Light and Seattle Public Utilities.

Both programs provide financial assistance to building owners and developers to incorporate meaningful and cost effective sustainable building goals early in building programming and design decisions.

The City's experience shows that projects which incorporate sustainable building goals early in the design process achieve higher levels of performance with less cost than projects which consider sustainable building strategies late in design. Experience also shows that goals are most effectively incorporated into a project if all stakeholders are all involved in developing those goals.

"To yield cost savings to the City taxpayers through reduced operating costs, to provide healthy work environments for staff and visitors, and to contribute to the City's goals of protecting, conserving, and enhancing the region's environmental resources"



Incentives cont

The LEED Incentive Program This program offers assistance and incentives to large projects (over \$5 million) applying for LEED™ Certification.

The BUILT GREEN™ Incentive Program This program provides financial assistance to building owners and developers to incorporate meaningful and cost-effective sustainable building goals for low to mid-rise multi-family projects.

Plans for Future Expansion

Regional Forum on Sustainable Infrastructure: Sustainable Streets and Streetscapes The Forum began by each city (Portland, Seattle and Vancouver) providing an overview of its sustainability programs and activities followed by presentations on reinventing streets for the 21st Century and an overview of sustainable street programs in other cities.

This was followed by several breakout groups that discussed the design of sustainable streets in urban areas, maintenance of sustainable streets in urban areas, politics and public support for alternative streets, barriers/incentives for sustainable streets, and ways to foster innovation. The major findings were:

- Three major Northwest cities, Portland, Seattle and Vancouver (BC), have had success with the design and construction of sustainable buildings, but sustainable infrastructure initiatives are relatively new
- Europe is ahead of North America in designing sustainable infrastructure and sustainable streets

- Seattle, Portland, and Vancouver are North American leaders in exploring innovative approaches to sustainable infrastructure and sustainable streets
- Multiple objectives need to be addressed in street design. (e.g., trees, pedestrians, bikes, safety, transit, lighting, sanitation, fire trucks, storm water, business needs)
- Key in developing greener streets is going from “standards/uniformity” oriented thinking to “interest-based/local innovation” thinking
- Street design needs to address maintenance concerns
- Lack of money is a big problem; sustainable streets can require increased maintenance and maintenance funding is already inadequate
- Most successful projects have had substantial community input and most are community driven; effective public process is important
- Elected officials have generally been supportive of green projects. Green projects are generally viewed by constituents as positive and hence supported
- It is important have a local champion to promote greener streets and then partner with the City to deliver them
- Definition of what is a green/sustainable street has slowed down the process
- Design charettes are a good way to incorporate sustainable design principles into projects

Next Steps

- Create a website that can be accessed by the three cities that includes information from the Forum and links to other cities’ programs
- Develop a common method to monitor projects
- Create opportunities for face-to-face interactions
- Ask American Public Works Association to sponsor a program on sustainable streets at their conference
- Develop standard design guidelines

Seattle Sustainable Building Program Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
Lucia Athens, Chair Green Building Team	Adopted a LEED Silver requirement for its major construction projects (over 5000 sq. ft.)	5	LEED Silver minimum for city-owned facilities	16	32



Impacts of the Program

What is the City Doing to Promote Sustainability? The City encourages sustainable building both in City projects through the Sustainable Building Policy and Facility Standards, and in the private sector by offering technical assistance, financial incentives, and resources.

Different City departments also provide educational outreach, seminars and workshops on a variety of sustainable building topics. The Business and Industry Resource Venture (BIRV) at the Greater Seattle Chamber of Commerce has contracted with Seattle Public Utilities to provide educational outreach and technical assistance on job-site recycling, the use of recycled content material in building materials, water conservation and sustainable building.

The City's Sustainable Building website gives more information about the City's activities; listing incentives and assistance available to citizens and businesses from various City departments.

The City has also teamed up with Seattle Central Community College to offer the Sustainable Building Advisor Certification course.

Who is Involved? All City departments and offices and their contractors responsible for financing, planning, designing, developing, constructing and managing City-owned facilities and buildings with over 5000 square feet of occupied space are affected by the City's Sustainable Building Policy.

The Office of Sustainability & Environment (OSE) coordinates the implementation of the policy and reports annually to the Environmental Management Oversight, Legislative and the Executive Panels on how well the City's construction projects meet the goal of sustainability.

The City's interdepartmental Green Building Team reviews and annually updates the "Seattle Supplements to the LEED Rating System for City CIP Managers," provides technical expertise on specific sustainable building issues, and coordinates LEED training programs.

Human & Financial Resources Allocated

An interdepartmental group of City employees, the Green Building Team, serves as a coordinating body for implementation of the policy and has resident experts on various green building sectors.

The Green Building Team consists up of representatives from City departments involved in capital projects or facilities maintenance. The current Green Building Team members are:

- Office of Sustainability and Environment:
Richard Gelb richard.gelb@seattle.gov
- Seattle Public Utilities:
Lucia Athens (Green Building Team Chair) lucia.athens@seattle.gov;
Thor Peterson thor.peterson@seattle.gov
- Seattle City Light:
Jack Brautigam jack.brautigam@seattle.gov;
Peter Dobrovolny peter.dobrovolny@seattle.gov;
Lucie Huang lucie.huang@seattle.gov
- Fleets and Facilities Department:
Amanda Sturgeon amanda.sturgeon@seattle.gov
- Office of Housing:
Joanne Quinn joanne.quinn@seattle.gov
- Department of Planning and Development:
Lynne Barker lynne.barker@seattle.gov
- Seattle Parks and Recreation:
Jim Ishihara jim.ishihara@seattle.gov
- Seattle Center:
Bonnie Pendergrass bonnie.pendergrass@seattle.gov

Additional Resources

1. **Sustainable Building Policy** City of Seattle 2000
2. **City of Seattle CIP Supplements to the LEED Green Building Rating System™**
A Handbook for Achieving LEED Silver and beyond on City of Seattle Capital Improvement Projects Version 2 (March 2001)
3. **Northwest Regional Sustainable Building Action Plan** Strategies to Mainstream Sustainable Design and Construction Practices in the Pacific Northwest (March 1999)



Notes



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HCMA Office Renovation



Hughes Condon Marler : Architects



City of Vancouver - Green Building Program

www.vancouver.ca/commsvcs/southeast/greenbuildings

Purpose of Existing Programs

Objectives The City of Vancouver is seeking to develop a green building strategy for all commercial, institutional, mixed-use, and high density residential buildings in the City of Vancouver. Vancouver Green Buildings objectives are to:

- Ensure that the strategy is robust, adaptable, flexible, and responsive for both users and administrators
- Ensure that the strategy is enforceable through a regulatory framework
- Ensure that the strategy meets existing civic policy for environmental stewardship and sustainable development
- Ensure that the strategy can be directly referenced to a to-be-determined LEED rating to ensure transferability/compatibility
- Ensure that the strategy is developed in a transparent and collegial manner with the public and all stakeholders

Vancouver City Council has adopted multiple policy directions that are either directly related to, or contain elements directly related to the sustainability imperatives around green buildings and the need for targeted green building policy in the City.

These specific policy directions are listed below and represent the environmental goals for the city wide green building policy.

Energy Efficiency and Green House Gas Reduction Ensure that all developments meet a minimum standard of energy performance that is appropriate and applicable to the particular building typology in an effort to meet civic policy objectives and bylaws relating to energy efficiency and greenhouse gas reduction.

Water Management Ensure that the utilisation of potable water both within buildings and for landscape applications is minimized to the lowest level possible for proper operation and performance of fixtures and landscape health, and ensure

that stormwater and grey-water strategies are explored to increase the water quality and decrease the water quantity for all water leaving the site.

Landscape Standards and Open Space Design Ensure that open space design is carried out in a fully integrated manner, with consideration for end users, planting variety, increased biomass, stormwater management, reduced potable water use, and the overall aesthetics of the site.

Transportation and Transportation Alternatives Ensure that reliance on transportation and design targeting Single Occupant Vehicles (SOV) is reduced to the minimum levels effective for successful project development and ensure alternative strategies are in place to encourage or require a shift to support sustainable transportation modes and SOV trip reduction.

Waste Management, Construction and Occupancy Ensure that waste is managed effectively by maximizing waste diversion through on-site recycling facilities and possible organic collection during the construction process and occupancy.

Healthy Interior Environments Ensure that built interior environments are designed to not only minimise the risk and health of building occupants, but are developed in ways that improve air quality, occupant health, comfort, and access to daylight and fresh air.

PROGRAM

Vancouver Green Buildings

VANCOUVER GREEN BUILDINGS CONTACT

Dale Mikkelsen, Green Building Planner | 604.871.6168

dale.mikkelsen@vancouver.ca



Historical Time Line

October 1990 - Clouds of Change This report's top recommendation is to reduce carbon dioxide emissions by 20%. Reduced greenhouse gas (GHG) production through better energy efficiency of buildings was recommended.

1995 - 20% Club Vancouver joined the Federation of Canadian Municipalities' "20% Club", which became the Partners for Climate Protection Program in 1998.

2001 - Southeast False Creek Policy City Council adopted the Southeast False Creek (SEFC) Policy Statement which include the development of green buildings and technologies.

May 2002 - Kyoto Protocol Council carried the motion, proposed by the Federation of Canadian Municipalities, to support the Canadian Government's ratification of the Kyoto Protocol. The City's largest focus becomes new construction and building retrofits.

March 2003 - Cool Vancouver Council approved an emissions reduction target of 20% from 1990 levels for the corporation of the City of Vancouver. Council created the Cool Vancouver Task Force and a Greenhouse Gas Reduction Action Plan. Green buildings are a big part of this plan, and represent up to 40% of all GHG emissions in the Lower Mainland.

June 2004 - Energy Utilisation Bylaw Council approved revisions to the Energy Utilisation Bylaw to improve the energy performance of new, large commercial and residential buildings by approximately 13% by updating references to the 2001 version of ASHRAE 90.1.

July 2004 - Green Building Policy Council approved a program to promote the development of a green building policy in the City. This included LEED Gold certification for all civic buildings, a 30% improvement in energy performance for all civic buildings and LEED Silver design for SEFC. Council specifically asked for the development of a city-wide strategy to be developed.

March 2005 - Southeast False Creek Official Development Plan (ODP) Vancouver City Council approved the SEFC ODP at a Public Hearing. In its approval, Council approved LEED Gold as the minimum requirement for the Olympic Athletes' Village and Council approved a working green building strategy for all other development with LEED Silver as a design goal.

March 2005 - Community Climate Change Action Plan

Council approved the Community Climate Change Action Plan. The Plan contains specific elements related to improving building performance.

Components of Existing Programs

A green building strategy will allow the City of Vancouver to ensure that all buildings constructed in the future will offer better environmental and health performance for both occupants and citizens. This strategy has yet to be determined in detail, but ultimately, it will represent a variety of mandatory and optional strategies to move toward higher performance. Any strategy developed will strive to achieve a new "baseline" of building performance that meets civic and environmental objectives supported by City of Vancouver Council and the public. The goal is to bring forward strategies over an incremental period of time for all new construction in the City.

Two draft strategies are currently being put forward for further discussion through stakeholder meetings and through commentary via the Green Building Website. These strategies are currently not fully resolved, and are presented here in a simple form.

The first strategy is a direct implementation of the Canadian Green Building Council version of LEED Canada 1.0, including full registration and certification and the associated fees for the administrative service. It is an easily recognizable standard that provides a minimum set of mandatory elements, while addressing a wide palette of green building options, all validated through a 3rd party registration and verification process.

The second strategy is a City of Vancouver directed strategy that offers the establishment of a minimum baseline for all development that is regulated and verified by City of

"The City of Vancouver is seeking to develop a green building strategy for all commercial, institutional, mixed-use, and high density residential buildings in the city."



Components of Existing Programs cont

Vancouver staff across departments. This strategy will also likely allow both choice and voluntary incremental performance improvements, while still illustrating a parallel to LEED Canada 1.0 for those wishing to pursue LEED additionally. There will be no fees, and all construction projects will follow typical paths through the permitting process. Two options were developed: Option 1 LEED Dedicated Path and Option 2 Vancouver Specific Green Building Strategy with LEED Parallel.

Final Strategy #1 - LEED Dedicated Path LEED and its administration and verification through the CaGBC acts as a good framework for comparison between all other green building strategies assessed. The strength, flexibility, and widespread applicability of LEED across North America highlights why a LEED Dedicated Path was considered in detail. The use of LEED as a regulatory framework would be structured as follows:

Premise The implementation of LEED Canada 1.0 as Regulatory Tool.

Objective Integration of LEED into a policy/regulatory framework to allow 3rd party verification and support for a “North American” standard.

Product Development into a “LEED Bylaw”

Baseline LEED Certification at a yet-to-be-determined level (Certified, Silver, Gold, or Platinum).

Additional Requirements Higher levels than the established baseline are fully voluntary.

Pros

- Bylaw simply references LEED
- 3rd party end verification (objective)
- Easy to increase standard over time
- CaGBC commitment to update every 3 years
- Staff training program readily available
- Limited staffing implications
- Ability to “benchmark” City against others
- High level of market transformation
- Increased adaptability with CaGBC

Cons

- Difficult to enforce penalties
- 3rd party end verification (long process)
- LEED may or may not meet civic policies
- LEED designed as a “voluntary” tool
- LEED has associated processing costs

Final Strategy #2 – Vancouver Specific Green Building Strategy with LEED Parallel

The previous five preliminary strategies offered positive steps forward, but through stakeholder and staff consultation, changes, blending, and new ideas were incorporated into a new strategy as an alternative to LEED. It was clear throughout the process that LEED should remain as a credible and desirable additional tool to measuring and assuring green building performance for those wishing to achieve very high standards or those looking to market and benchmark their development using an internationally comparable standard. As such, any locally developed standard should illustrate a supportive path to the attainment of LEED points.

Premise Internally developed and supported bylaw with a mandatory baseline of performance that supports voluntary LEED registration and certification.

Vancouver Green Buildings Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
Dale Mikkelsen Green Building Planner	Green building strategy for all commercial, institutional, mixed-use, and high density residential buildings in the City of Vancouver.	2.5	Adopted LEED Gold standard for city-owned facilities over 1,000 sq.m....	4	19



Components of Existing Programs cont

Objective Creation of an adaptable strategy with a strong minimum baseline of regulation with bylaws that reflect City policy and local building conditions.

Product Development into a set of “Green Building Guidelines” that references existing bylaws, enhances bylaws, and introduces new bylaws with associated targets and methodologies/tools for achievement.

Baseline Minimum baseline standard of “required” and “optional” elements regulated as City bylaw – new best practices (phased approach).

Additional Requirements Additional items are voluntary, but supported through guidelines.

Pros

- Truly reflective of City goals/policies
- Mandatory baseline insures performance
- Ability to be robust
- Flexibility in negotiation for additional means
- Staff involved at all levels (integrated design)
- Administered and supported internally
- High level of “local” market transformation
- No additional fees/expenses
- Minimum baseline meets LEED standards
- Likely achievable under Charter
- Should be supported by development sector – “levels the playing field”

Cons

- Administrative work – multiple milestones
- Difficulty in keeping up-to-date
- May not feel as marketable as LEED
- Administered internally/staffing costs/training
- Somewhat difficult to benchmark with others

City staff has analyzed the two options and are currently working on the policy which recommends a Vancouver Specific Green Building Strategy with LEED Parallel as the most suitable option for the City of Vancouver.

This Vancouver Green Building Strategy would likely consist of mandatory and voluntary elements. The mandatory elements would be further broken down into primary City priorities and secondary City priorities. This structure provides the flexibility of phasing the green building strategy as the market and the internal permitting/approval process begins to adjust to

a new way of building. Primary City priorities are those elements that are already strongly supported by City policy and bylaws, but may need enhancement to meet new standards of performance determined through the work program. These would be the first elements developed and regulated to move the strategy forward.

Secondary priorities may be rather numerous and diverse, including some elements that may be fully complementary, and others in competition with one another depending on building type and building design objectives. As such, these elements will need more staff attention in developing a regulatory structure around, and would likely be best served through some form of “choice” or “point” based system. This would likely represent a more advanced phase of the strategy, when the development and design community, and the construction, trade, and supply communities have increased green building capacity.

Voluntary measures would remain outside of the regulated strategy and would represent truly progressive and aggressive green building design protocols. An advanced application guide would be developed to help developers and designers pursue these features so the bar is continually pushed in Vancouver. Some of these features may be negotiated through conditional approval and rezoning projects to ensure additional public benefit. Many of these voluntary measures would be tied directly to LEED measures.

A preliminary look at this phasing strategy was developed and presented to stakeholder groups. The strategy received general consensus as an effective starting point, but needs more detailed resolution through full development of the strategy.

Phase 1

- Green Building Guidelines and Bylaw completed
- Primary City priorities required
- Secondary City priorities identified
- Voluntary additional measures identified

Phase 2

- Secondary City priorities identified and encouraged
- Voluntary additional measures identified

Phase 3

- Secondary City priorities required through choice of measures



Components of Existing Programs cont

- Voluntary additional measures identified

Phase 4

- Internal and peer review and minor edits/exclusions/variances
- First formal review and Council report-back
- Establishment of 3 year review/revision protocol

Incentives

The City of Vancouver does not offer any direct formal incentives to promote green buildings. However, during rezoning process, the City may 'reward' sustainable design strategies on some projects. This informal way of supporting and promoting green design principles does not create large scale opportunities to green the City's built environment.

The future city-wide green building policy will ensure a significant increase in green performance for all buildings (except single-family residential) without having to put in place a formal incentive program. It will ensure a minimum 'green' performance for all buildings.

Furthermore, green residential programs such as Built Green are currently under review by the City. This would expand the City's green building program by including single-family residential into the equation.

Plans for Future Program Expansion

If the City of Vancouver is to pursue the city-wide green policy as outlined in Option 2, there are four significant pieces of work required over the time frame identified below:

- Regulatory baseline with application guide: The minimum baseline of mandatory green building standards will need to be developed in conjunction with stakeholders and placed into a regulatory framework. This will be packaged in a detailed green building strategy application guide to be produced by the City
- Building code and bylaw assessments and changes: Significant building code and bylaw changes will go through independent review, Council approval, and Charter review

- Detailed phasing and implementation strategy: A very clear, structured phasing strategy, including education and training of staff and stakeholders needs to be developed to ensure implementation is effective
- Continued review and refinement of the adopted SEFC Green Building Strategy as the first applications are received, processing, and construction started

IMPLEMENTATION PLAN

Winter 2005/2006

- Council approval of recommendations
- Continued development of Strategy #2 – regulatory approach
- Integration of Council comments
- Ongoing full regulatory and policy review
- Identification of key barriers
- Further development and refinement of SEFC Green Building Strategy
- On-going green building stakeholder group meetings

Spring/Summer, 2006

- Support from all involved departmental staff
- Bylaw updates/upgrades pursued
- Development of training curriculum to be offered by the City
- Intensive staff and stakeholder outreach, consultation, education and promotion of green buildings
- Council Report in preparation of launch and ongoing staffing

Fall, 2007

- New bylaws to Council for their approval
- Launch of Green Building Strategy
- Phase 1 Implementation

Opportunities and Challenges

It is becoming clear that stakeholder involvement is imperative to the success of this project. Several layers of outreach will need to be directed to a broad-based stakeholder group representing all specialty stakeholder groups and interested/involvement members of the public and environmental groups/organizations that are a part of the green building process.



Opportunities and Challenges cont

Specialty Stakeholder Groups The groups targeted for specific discussion, workshops include some of the following: Urban Development Institute (UDI), The National Association of Industrial and Office Properties (NAIOP), Building Owners and Managers Association (BOMA), Canadian Green Building Council (CaGBC), The Condominium Home Owners' Associations (CHOA), Business Alliance For Local Living Economics (BALLE), The Greater Vancouver Home Builders' Association (GVHBA), construction industry groups, etc.

Environmental Groups EcoDesign Resource Society (EDRS), SouthEast False Creek Stewardship Group, LEED BC Steering Committee, etc.

General Public Information As the strategy moves into a more refined form, a general public information schedule with meetings will be organized.

Results or Impacts of the Program

The City is embarking upon the development of a city-wide green building strategy to ensure that the environmental performance of the City exceeds current practice. It is difficult to say at this time what the end overall environmental impact of the green building strategy will be. A Cost-Benefit Analysis will be completed to specifically illustrate the environmental performance of buildings as a result of the end strategy.

The end strategy will seek to, as a minimum, meet the goals and objectives stated in the policy documents and sustainability bylaws and codes outlined in the discussion of City priorities. The Green Building Strategy will be a leading edge, regulated green building strategy that leads environmental building policy in North America. It is well documented that green buildings improve occupant health, comfort and productivity.

Green buildings provide the occupant with a direct connection to the natural environment, enhancing the livability and comfort of the living environment. Green buildings are also documented to not only increase the livability of the building itself, but of the region when implemented at a community scale.

People living within and among green communities gain a sense of identity associated with health and support of the ecological and natural systems around them. This identity is often passed on to the larger region through education, word of mouth, and the experiential quality of buildings.

Although the evidence is mounting on the relationship between our built environment and human health and social well-being, more education and successful demonstration projects are needed to see large scale positive results. The City of Vancouver's city-wide Green Building Strategy is a solid step in the right direction.

Human & Financial Resources Allocated

The estimated staff needed to advance the City of Vancouver Green Building Policy is 1 full time employee and 1 half time position for a period of approximately 12 months, with significant allocation of technical staff time in all departments to shape bylaw changes. Additional staff time from the Office of the Chief Building Official will be required. In addition to staffing requirements, funds are required for presentations, research and a review of any cost or design implications for the broad range of City building types, and to contribute toward events, studies and publications which generally promote green design and sustainable development. An operating budget of less than \$100,000 is estimated for 2006 coming from carry-over and Sustainability Group financing sources. This amount will cover staffing, consultancies, publication and presentations related to the program.

Additional Resources

1. **Developing a Green Building Strategy for the City of Vancouver** July 3 2004



Notes



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South Circle Building ● D'AMBROSIO ARCHITECTURE & URBANISM





City of Victoria - Green Building Policy

www.city.victoria.bc.ca

Purpose

Green Building Policy The City of Victoria does not have a formal green building program, however the City is presently in the process of considering a green building policy.

The City is considering the creation of a green building policy for the purposes of:

- Demonstrating both leadership and due diligence in environmental, social and economic stewardship in building projects
- Keeping up with the best practices developed in other North American cities which have resulted in considerable benefits to city infrastructure, growth management and quality of life

Historical Time Line

September 2002 - Advisory Planning Commission Advisory Planning Commission (APC) passes motion to request the establishment of a special committee with Design Panel and other relevant committees to research issues and propose a green building policy for Council's consideration.

October 24, 2002 - Council Motion Council carries a motion that contains the following recommendations:

- Consideration of sustainable design and development policies / Green Building Initiatives be considered as part of the Planning Division 2003 Work Program
- The Advisory Planning Commission, with the Advisory Design Panel and other relevant committees establish a special committee to research issues and propose a green building policy for council's consideration
- The recommended process and make-up of the special committee be reported back to the Committee of the Whole.

December 2004 - Terms of Reference

Draft Terms of Reference for Green Building Policy development drafted and approved by APC.

May/June/July 2005 - Green Building Information Sub-Committee

Seven of the City's Advisory Committees (for instance Advisory Design Panel and Advisory Housing Committee) were asked to select one representative each to sit on the "Green Building Information Sub-Committee." Three "experts" are selected: an economic specialist, an architect and a green building consultant previously involved with the development of a green building policy for Saanich and other green building policy initiatives.

August 2005 - Definition of Scope The first meeting of the "Green Building Information Sub-Committee" included introductions of refined scope for the research including:

- Community economic development implications of green buildings
- Environmental impacts of conventional vs. high performance green buildings
- Social/community implications of green building design and construction practices
- Life cycle costing analysis
- Rating systems and performance criteria that have been considered/adopted - particularly by other Pacific Northwest jurisdictions
- Governance and administration processes used to manage current green building policies in other jurisdictions

PROGRAM

City of Victoria Green Buildings

CONTACT

Mickey Lam, Head, Urban Design | 250-361-0288 | mickeyl@city.vic.bc.ca



Historical Time Line cont

- Green building citations and synergies within existing City of Victoria policies
- Funding options for green building initiatives
- Post occupancy evaluations for green buildings
- Information related to the particular scope and application (guideline as opposed to regulation) of green building policies including:
 - New buildings
 - Existing buildings
 - Publicly funded buildings
 - Private sector buildings
 - Residential (single or multiple) buildings
 - Commercial buildings
 - Industrial buildings
- Lessons learned by other jurisdictions that have adopted a green building policy
- Barriers to implementation of a green building policy (e.g. building codes, capacity)
- Heritage preservation and its relationship with green buildings
- Impacts of green buildings on municipal infrastructure (e.g. utilities, parks, roads, etc.)
- Definition of green buildings

Fall 2005 - Green Building Policy The information will be screened and summarized. The research will inform the terms and application of the eventual green building policy. Presentation to Council will occur once the summarized information has been collated. It is expected that the second phase of the Green Building Policy development will begin soon thereafter and conclude in 2006 with an implementation plan.

Opportunities and Challenges

Despite the fact that Victoria is only now researching and formalizing their “green building policy”, it should be noted that there are green building projects being built or on the drawing boards in Victoria that will greatly add to a body of experience related to the planning of green developments. One such project is the Dockside Green development, some aspects of which are listed in the “Opportunities and Challenges” section of this summary.

Dockside Green Opportunities for Victoria’s soon to be created green building policy lie in related experience that is being gained in the development of “Dockside Green,” a current mixed-use development with a target of LEED Platinum (few projects in North America have achieved such a level of performance). The project is located on formerly City-owned properties. The City created a comprehensive “Development Concept” after completing a business case analysis. The City selected a developer to purchase and develop the properties through an exhaustive Request For Proposal (RFP) process.

Setting this project apart and making it significant from a green building perspective is the prescriptive inclusion of numerous guidelines, including minimum requirements for environmental performance of the overall development and the individual buildings. These environmental considerations, along other design and planning guidelines, were included in the Request For Proposals to choose the developer for this project.

This project contributes to the discussion on finding a balance between :

- Relying on LEED as third party verification of environmental performance of a project; and
- The common desire of any municipality (or other jurisdiction) to weight the environmental performance according to their own priorities

To date, a key factor in the success of this project is the manner in which the City of Victoria leveraged the sale of a very prominent, yet contaminated city-owned site to the benefit of a green approach to development. In determining desired goals for the project as a whole, with considerable expert and public input opportunities, the City maintained control over performance and design of the project, including environmental considerations, long before the property was “on the market”.

“...demonstrate both leadership and due diligence in environmental, social and economic stewardship when considering future building projects”



Opportunities and Challenges cont

It is believed that this experience will influence the approach the City of Victoria will take in adopting a “Green Building Policy”. In particular, incentives (i.e. density bonus, speeding up of rezoning process, City cooperation with specific rezoning requirements) offered in exchange for public amenities (including green building practices) may serve as an example for green building policies and how they may be adopted by the private sector.

However, the City is currently reviewing some of the challenges presented by incentives. Through further analysis in this development, the City can effectively assess the success of such a policy.

The “Selkirk” neighbourhood The “Selkirk” neighbourhood is a mixed use waterfront neighbourhood which has been under development since the early nineties. As an early adopter of numerous green site development strategies, such as brownfield reclamation, on-site stormwater retention/treatment, mixed use (industry, office, residential, recreation and hospitality), use of indigenous plants, use of pervious paving materials, reuse/recycling of materials and the focus on alternative transportation options (transit, water and bicycle).

This project introduced the City (Planning Department, Parks and Recreation Department) to sustainable development. However, despite the neighbourhood green urban strategies in place, few green building strategies were introduced at the building scale.

Some strategies such as traffic-calming measures, water-wise landscaping with indigenous plants as well as use of pervious paving materials on paths, after meeting with initial hesitation by the City, were not only accepted on a trial basis, but some were later adopted as standard practice in City-owned parks or projects.

The successes (and failures) of sustainable elements within these projects are likely to give the City a valuable frame of reference regarding building green beyond mere application of LEED and there is a good chance that this will be reflected in the new Green Building Policy being developed by the City.

Further opportunities lie in the resources and experiences that can be drawn from local sources that have already experimented with sustainable building projects.

It would be beneficial to consult such local sources such as the BC Building Corporation (largest accommodation provider in BC with significant experience in the development and maintenance of green buildings) or the University of Victoria, which has developed a green building policy for their campus and also owns the Vancouver Island Tech Park, until recently home to the western office of the Canadian Green Building Council, CaGBC.

Human & Financial Resources Allocated

A sub-committee is currently in place on a volunteer basis to explore the issues related to green buildings. Future human resource allocation will likely be very much dependent on the anticipated re-structuring of the City of Victoria Planning Department.

Victoria Green Buildings Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
Mickey Lam, Head, Urban Design	Expected to adopt LEED based policy for city-owned facilities	0	Expected to adopt LEED Silver Standard for city-owned facilities	1	8



Spring Creek Firehall ● Hughes Condon Marler : Architects



Resort Municipality of Whistler - Whistler 2020

www.whistler.ca

Purpose of Existing Policy

The Resort Municipality of Whistler (RMOW) has taken an aggressive stance towards applying sustainability principles in all facets of community development. The Resort Municipality has done this by adopting and developing a set of rigorous guiding directives, policies, and programs that encourage and direct sustainable practices. Embodied in these policies and directives is a commitment to green building principles and practice.

The RMOW does not have a formal green building program. All the sustainable building policy and guidelines are derived from the Whistler 2020 policy adopted by Council in 2004. This policy addresses many long term issues in the Resort Municipality such as enriching community life, enhancing the resort experience, protecting the environment, ensuring economic viability and partnering for success.

A detailed set of strategies for the built environment are outlined in the Whistler 2020 document. These strategies address how the physical characteristics of Whistler's buildings and neighborhoods make the resort community unique, livable and sustainable. It includes residential, commercial, institutional and industrial buildings, as well as their surrounding landscape and paved areas. It also addresses the locations and patterns of development as well as the amount and timing of these developments. The strategy excludes service infrastructure such as roads, water and sewer lines.

Historical Time Line

2000 - The Natural Step Framework In March 2000, Dr. Karl-Henrik Robèrt, a Swedish oncologist and leading sustainability researcher, spoke at a number of different sessions about The Natural Step Framework, a system for understanding sustainability that he developed with the help of 50 other Swedish scientists. The resulting "It's Our Nature" is a community-wide program initiated by a partnership of local organizations and businesses to promote and support more sustainable practices among businesses, schools and households.

2002 - The Whistler Environmental Strategy The Resort Municipality of Whistler recognizes the need to maintain and restore local ecosystems. The 1993 Comprehensive Development Plan observes "the high quality of the natural environment is one of the main reasons for Whistler's success as a resort and its attractiveness as a community."

2002 - Whistler Green - Residential Green Building Rating System The RMOW commissioned a group of consultant to develop this rating system to explore the environmental performance of all types of residential buildings in the RMOW.

2004 - Integrated Energy, Air Quality and Greenhouse Gas Management Plan The plans were adopted by Council and published in 2004. They intend to guide the Resort Municipality in achieving the goals described in Whistler 2020.

2004 - Whistler 2020 Whistler 2020 Moving Toward a Sustainable Future, adopted by Council in December 2004. The 16 strategies included in the Whistler 2020 document - crafted by 16 community task forces - were developed to guide the resort community toward a shared vision of success and sustainability. The 16 strategies are: Arts, Culture & Heritage, Built Environment, Economic, Energy, Finance, Health & Social, Learning, Materials & Solid Waste, Natural Areas, Partnership, Recreation & Leisure, Resident Affordability, Resident Housing, Transportation, Visitor Experience and Water.

All Whistler 2020 strategies were adopted by Council on August 2nd, 2005 and now represent important policy directions for shaping the community's future.

POLICY

Whistler 2020

CONTACT

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Mike Vance, General Manager of Community Initiatives | 604-935-8118 | mvance@whistler.ca



Components of Existing Policy

These Whistler 2020 strategies represent the current state of affairs of green buildings for the RMOW. Here is a brief description of the proposed actions:

Establish minimum LEED rating for commercial and industrial buildings greater than 500 m2 complete with C2000 standards A minimum sustainability standard is needed for municipal, commercial and industrial buildings. The standard might be LEED or might be customized for Whistler.

Pilot, monitor and refine “Whistler Green” standards for Nita Lake single family residential housing A pilot project at Nita Lake is testing Whistler Green standards as applied to a standard residential development. Appropriate resources must be available to monitoring success and to adapt the draft Whistler Green standard according to lessons learned.

Require new RMOW municipal buildings be designed using an Integrated Design Process (IDP) The IDP requirements could eventually be requested on all RMOW buildings.

Prepare the master plan and detailed design for the Athlete Village with standards based on Smart Growth and sustainability principles that can be applied to the new neighbourhood The area is being planned as a new neighbourhood first, and as an Athlete’s Village second. Lasting legacies will be key considerations in all actions.

Establish the Whistler Centre for Sustainability as a legal entity The Whistler Center for Sustainability would house and promote sustainability learning, education and outreach initiatives. The business plan was drafted several years ago, and must be updated and implemented.

Refine the “Whistler Green” standards to apply to the Athlete Village and all new multi-family resident housing This action will focus on refining Whistler Green to also apply to multi-family dwellings. It involves adopting the approval process to ensure it is aligned with sustainability objectives.

Establish policy and regulations for physical space in buildings for recycling and composting systems Space and appropriate containers avoids contamination issues. Base requirements on statistics from Carney’s Waste Systems. Success in the longer term involves revisiting and upgrading old sites and buildings, as well as new buildings.

Plan an improved resident and business recycling/composting system for the new Athletes Village neighbourhood Important components include: (A) central collection in heavy volume food areas (less impact and increased efficiencies); (B) consider convenience factor in outlying areas (if density does not exist, have small satellites with sufficient physical space); (C) Explore innovative ideas like Swedish vacuum system; (D) Incorporate upstream policies (e.g. 2010 Zero Waste, vendor sale policies, influence 2010 partners early, use as show-case of sustainable products)

Ensure 250 units of resident restricted housing are under construction within the next 18 months, beyond what is already committed These would be owner restricted units, and must meet or exceed minimum sustainability standards. Explore and develop plan to integrate Aquatex watershed management tools into Whistler’s practice.

Explore establishing regulations that would require new buildings to be equipped with energy systems that are flexible to enable the transition to more sustainable options in the future (To be done through the Athlete Village planning/development).

Background Info

The Natural Step Framework and the Whistler Green Residential Green Building Rating System have and will continue to contributed to the Whistler 2020 green buildings strategies. Here is a brief description of these two historic elements of the RMOW green buildings strategy.

“In 2020, Whistler’s built environment is vibrant, reflects the community’s character, contributes to individual health and well being, and is moving toward its identified sustainability objectives.”



Background Info cont

THE NATURAL STEP FRAMEWORK

Whistler 2020 makes a firm commitment to The Natural Step Framework; a set of four principles that indicate movement towards improved social, environmental, and often economic sustainability. The Natural Step Principles guide the user towards practicing more sustainable development.

A number of subsequent studies, plans, and clear actions or directives have been developed to enable implementation of the Whistler 2020 planning document. Of particular relevance to more sustainable building practices are the Integrated Energy, Air Quality, and Greenhouse Gas Plan, and the Whistler Environmental Strategy. These plans will support the Natural Step Principles and help define the specific strategies for achieving sustainable design for the RMOW.

WHISTLER GREEN

Whistler Green was developed a few years ago to begin the discussion and process of greening residential buildings in the Resort Municipality. “Whistler Green V 1.0” was designed has a trial development for single and multiple family residential buildings standard for Whistler.

It is based on required performance criteria that must be met to achieve the Whistler Green designation, and the potential to achieve “Whistler Green Plus” designation by earning optional points. In the Nita Lake case, the green standard will be a covenant on the residential properties. The results of the trial will be reviewed and future use of the standard considered for other developments.

The complete Whistler Green Standard criteria is divided into topics, such as water and energy use. Each category has required and recommended criteria allowing for a minimum performance or for increased level of sustainable design. The rating system is based on earning point to achieve the various levels of performance. Points are calculated according to the green performance of the standard, summarized in the table below.

For the compliance and points claims to be accepted, evidence must be shown conforming to the “compliance method”. Performance beyond the required compliance will be awarded as follows:

Performance Awards

Whistler Green	Whistler Green Plus 20	Whistler Green Plus 30	Whistler Green Plus 40
Compliance with Required Points	20 to 29 Plus Points	30 to 39 Plus Points	40 or more Plus Points

Incentives

There are no direct incentives offered by the RMOW to support green building projects. However, the Resort Municipality is currently researching ways to implement direct and indirect incentives. At the moment, education and promotion of the numerous advantages of green buildings is the main vehicle by which RMOW is promoting green building design and construction.

Whistler 2020 Summary

Components			Results		
Program Leader Position	Green Building Policy	Full Time Staff	Specific Targets	LEED Certified Projects	LEED Registered Buildings
Chris Bishop Planner	Whistler 2020 offers strategies and guidelines for green buildings	0	No Specific Performance Target Defined	1	3



Plans for Future Program Expansion

Outlined in Whistler 2020, RMOW's clear vision of what it wants to become in terms of sustainable built environment is summarized in the following statement:

In 2020, Whistler's built environment is vibrant, reflects the community's character, contributes to individual health and well being, and is moving toward its identified sustainability objectives.

In order to achieve this goal, a list of actions was developed to make the building industry more sustainable. This draft list includes actions related to the built environment that were recommended by other Whistler 2020 task forces for implementation in 2006 and 2007. The action approval process with partners is currently underway and will continue through summer 2005. Approved 2006 actions will be released in fall 2005. The 2006 deferred actions, the 'potential future actions', and the identified 2007 actions will all be re-prioritized by the task force in 2006 to produce a refined set of recommended 2007 actions.

This list also includes the lower priority actions identified by the Built Environment Task Force. These actions listed under 2008 are included for future consideration by the task force. Along with the 2007 actions and the 2006 deferred actions, these actions will be re-prioritized in 2006 to produce refined set of 2007 actions that will then be recommended to the partners for implementation.

List of Recommended Actions for 2006, 2007 and 2008

2006

- Set up a recycled building material facility
- Create alternative development standards for site servicing
- Create an ongoing forum and/or speaker series on sustainable issues
- Refine, finalize and implement the business plan for the Whistler Centre for Sustainability
- Create no or reduced down payment purchasing options for resident restricted housing
- Accelerate the implementation of the 'Whistler Green' Building Standards for all new residential development
- Encourage higher density form/neighbourhoods in rezoning and DP processes
- Create a 'Green Building Coordinator' as a permanent position at the Resort Municipality
- Develop a RMOW-wide Master Plan

2007

- Develop a plan for applying Whistler Green to commercial developments
- Provide ongoing education opportunities for staff and Council regarding sustainability/green building issues
- Develop/expand school programs to raise awareness on sustainability/limits to growth/green building issues
- Develop a brownfield redevelopment strategy
- Undertake a study to determine the resort and resort community's 'limits to growth'
- Research and develop local cold climate sustainable building expertise
- Research, develop and encourage the use of innovative green building methods and materials

2008

- Establish annual architecture show and showcase for green buildings
- Create and encourage a continuous flow of demonstration projects
- Establish a training program to foster environmental excellence in green building issues/methods
- Develop Whistler Green standards for interiors and renovations
- Hire a RMOW building management auditor to represent tax payers' interest in new capital project decisions
- Develop a local registry and marketing strategy to support local green building sector
- Create a Whistler Land Trust
- Explore and implement Local Improvement Charges (LICs) for funding energy efficiency/renewable energy use within new developments

Opportunities and Challenges

Opportunities

- Support and facilitate the incorporation of green building practices in all new construction and redevelopment
- Increase public and professional awareness of green building techniques and methods
- Raise current building practices to the level of 'Whistler Green' standards
- Increase awareness of the cost saving and economic benefits associated with high performance building design, operation and maintenance

Challenges Residential, commercial and institutional buildings in Whistler currently use large amounts of energy and materials. In 2000, residents and visitors consumed 2.9 million giga joule (GJ) of energy at a cost of approximately \$1,900 per person (including visitors).



Opportunities and Challenges cont

Commercial and institutional buildings consumed 39% of this total, while residential buildings consumed an additional 27%, cumulatively these two sectors result in over 55,000 tonnes of GHG emissions (CO₂e) per year. In 2000, Whistler uses over 680,000 GJ of propane for select heating and appliance use, resulting in a total cost of approximately \$8 million.

A recent study indicated that even relatively new buildings could achieve as much as a 19% improvement in propane use efficiencies through the implementation of simple demand side management initiatives.

Residential buildings are generally not built to leading energy standards even though the cost premium of building to green building standards is rapidly decreasing – currently estimated at 2%-5% depending on the level of finishing, and associated payback periods of often only a few years.

From a commercial perspective, hotels in Whistler use less energy than the average hotel in Canada, however their average use levels are still significantly above the threshold for National Office of Energy Efficiency CBIP hotels.

Residential buildings are generally not built to leading energy standards, and many second homes consume resources while standing empty. Although some new buildings have incorporated innovative green building practices, few other buildings are built with recycled and/or renewable materials, or are designed for deconstruction and/or flexibility for changing needs.

Further, although the Resort Municipality has partnered in the creation of a comprehensive set of green building guidelines known as 'Whistler Green', these standards have not yet been implemented for commercial buildings.

The built form also impacts materials and solid waste flows within the community - currently, 29% of the total waste stream consists of reusable and recyclable construction and demolition waste. Likewise, water resources are largely not being used efficiently or appropriately within the built environment; water is not metered or priced to reduce consumption, and most uses draw on high-quality drinking water for purposes that do not require the water to be potable.

Recognizing the fact that most of the current building stock could benefit from increasingly efficient operational systems, business owners and building engineers are increasingly commissioning 'operational efficiency audits' and associated energy management plans.

Impacts of the Program

The RMOW has built municipal green buildings as part of their agenda to move the built environment towards sustainability. There is one LEED certified building in Whistler at the moment; the Spring Creek Firehall.

Three other projects are registered, the Whistler Convention Centre, Squamish Lil'wat Cultural Centre and the Whistler Public Library.

Human & Financial Resources Allocated

There is no formal green building department for the RMOW. It is in the recommended actions that the Resort Municipality creates a 'Green Building Coordinator' as a permanent position. This position would be structured to become the "go to" person at the RMOW and to coordinate the effort for the green building policy and related green building issues.

Additional Resources

1. **WHISTLER 2020 Moving Toward A Sustainable Future** adopted by Council in December 2004
2. **WHISTLER 2020 Moving Toward A Sustainable Future Built Environment Strategy Comprehensive Sustainability Plan** June 9 2005



Local Government Green Building Programs

	VICTORIA	VANCOUVER	SEATTLE	PORTLAND
Components				
Program Leader Position	Mickey Lam Head, Urban Design	Dale Mikkelsen Green Building Planner	Lucia Athens, Chair, Green Building Team	Terry Miller G/Rated Coordinator
Green Building Policy	Expected to adopt LEED based Policy for city-owned facilities	Green building strategy for all commercial, institutional, mixed-use, and high density residential buildings in the City of Vancouver.	Adopted a LEED Silver requirement for its major construction projects (over 5000 sq. ft.)	Green Building Policy embraces all civic buildings
Full Time Staff	0	2.5	5	4
Results				
Specific Targets	Expected to adopt LEED Silver standard for city-owned facilities	Adopted LEED Gold standard for city-owned facilities over 1,000 sq.m.	LEED Silver minimum for city-owned facilities	LEED Gold for city-owned facilities
LEED Certified Projects	1	4	16	11
LEED Registered Buildings	8	19	32	49



Comparative Chart

	WHISTLER	SAANICH	RICHMOND	GVRD
Components				
Program Leader Position	Chris Bishop Planner	Pam Hartling Research Planner	David Naysmith (new buildings) Phil Hogg (existing buildings)	Helen Goodland Senior Advisor: Sustainable Buildings
Green Building Policy	Whistler 2020 offers strategies and guidelines for green buildings	Adopting a Green Building Policy for all municipal facilities.	Sustainable "High Performance" Buildings	2003 – Planning and Environment Committee adopted LEED as primary tool in the region to promote green buildings
Full Time Staff	0	0	0	3
Results				
Specific Targets	No Specific Performance Target Defined	LEED Silver or Gold for all new civic buildings construction and additions larger than 500 sq. m.	LEED Gold for new city buildings >2000 sq.m. LEED Silver for major renovations and new city buildings < 2000 sq.m.	Recommends voluntary use of LEED to member municipalities and LEED certification for all new GVRD buildings
LEED Certified Projects	1	1	0	8
LEED Registered Buildings	3	1	3	45

Notes



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Notes



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