



**Corporate Strategic Initiatives Department**

**TO: Community Development Committee**

**SUBJECT: Corporate Sustainable Building Policy**

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Report Number: CSI-04-10

File Number(s): 210-09

Report Date: March 26, 2010

Ward(s) Affected: 1  2  3  4  5  6  **All**

Date to Committee: April 19, 2010

Date to Council: May 3, 2010

**Recommendation:** Approve the Corporate Sustainable Building Policy requiring a Silver LEED® rating for new corporate facilities and major retrofits subject to specific principles as presented in Appendix B in Corporate Strategic Initiatives report CSI-04-10, March 1<sup>st</sup>, 2010.

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**Purpose:**

- Address goal, action or initiative in strategic plan
- Establish new or revised policy or service standard
- Respond to legislation
- Respond to staff direction
- Address other area of responsibility

To propose a new corporate sustainable building policy for approval by Council.

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**Reference to Strategic Plan:**

Excellence in Government

Environmental Stewardship

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**Background:**

On June 9<sup>th</sup>, 2008, Council approved the following staff direction:

THAT the General Manager of Development & Infrastructure and the Director of Planning be directed to report back to the Community Development Committee with an evaluation of the application of energy conservation and green building features following Leadership in Energy and Environmental Design (LEED®) type standards for all new City of Burlington facilities and major renovations as well as new commercial and multi-unit residential development in the City.

This report provides an analysis of implementing a sustainable

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building policy for corporate facilities to demonstrate the City's commitment and leadership in achieving sustainability. A separate report (PB-32-10) is also presented by the Planning and Building Department related to community sustainable building measures.

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## Discussion:

### **LEED® (Leadership in Energy and Environmental Design)**

Is a sustainable building rating system, developed by the US Green Building Council, which has been adapted and is administered by the Canada Green Building Council. It is likely the most recognized sustainable building standard in North America.

### **Programs:**

There are six different LEED® programs:

- New construction (*LEED® Canada NC*)
- Commercial interiors (*LEED® Canada CI*)
- Core and shell (*LEED® Canada CS*)
- Existing buildings (*LEED® Canada EB*)
- Homes (*LEED® Canada for Homes*)
- Neighbourhood development (*LEED® Canada-ND*)

### **New Construction:**

LEED® Canada-NC 1.0 applies to new construction and major renovations of commercial and institutional buildings, retail, mid- and high-rise multi-unit residential buildings, public assembly buildings, manufacturing plants, and other types of buildings.

### **Rating System:**

Buildings can be rated at four different levels, depending on the points achieved in total based on the sustainable building practices employed. The following is a breakdown of points (out of a possible 70 points) that must be achieved for a new construction project:

Certified - 26 – 32 points  
Silver – 33 - 38 points  
Gold – 39 - 51 points  
Platinum - 52 + points

See Appendix C for a checklist of LEED® points.

There are six different areas to achieve LEED® points:

**Site Development:** addresses issues of site selection, responsible site management during construction, impacts of site treatment on surroundings, transportation, density, and

stormwater.

**Water Efficiency:** addresses issues of water consumed by both landscaping and building fixtures, and by sewage conveyance.

**Energy Efficiency:** addresses issues of energy efficiency, ozone depletion, use of renewable power, commissioning, and measurement and verification of system performance.

**Material Selection:** addresses issues of recycled, rapidly renewable, and regional content in materials selected; construction waste management, recycling infrastructure, building and material reuse, building durability and use of sustainably harvested wood.

**Indoor Environmental Quality:** addresses issues of increased and more efficient ventilation, carbon dioxide monitoring to ensure better air quality, access to daylight and views, thermal comfort, use of low-emitting finishing materials, air quality management, tobacco smoke control, and source control of pollutants.

**Innovation in Design:** allows flexibility of the design team to incorporate innovative green building features, or realize exceptional performance in an existing credit, and recognizes the inclusion of a LEED® Accredited Professional on the design team.

**Verification**

The LEED® program requires third-party verification by a LEED® accredited professional. Verification of the sustainable building measures used throughout the design and construction process and the level of points achieved is necessary to avoid greenwashing or false claims. Keeping records of green building practices also allows for information to be passed on and utilized for future projects, as well as ensuring proper maintenance of the sustainable building measures incorporated into the LEED® building.

**Monitoring & Commissioning**

New buildings can be complex facilities to operate, particularly related to heating, ventilation and air conditioning systems. A key benefit of LEED is the requirement to monitor and commission the operation of the building to ensure its performance is meeting set targets and to troubleshoot problems.

**LEED® Trademark**

Some proponents of new buildings claim that their projects are LEED® equivalent or LEED® shadowed, meaning they are

planning to meet a certain LEED® standard without actually going through the verification or accreditation process. Without the third party verification of the LEED® points achieved, there is nothing to guarantee that the project has been built to LEED® standards. Furthermore, LEED® is a trademarked term and any claim to meeting LEED® standards without actually completing the program could be considered an infringement on the trademark.

## **Key Benefits of LEED®**

### ***1. Reduced Demand on Municipal Infrastructure for Services, Transportation and Energy***

The reduced demand for municipal water supply, storm water management, sewage treatment and solid waste management is a key benefit of green buildings, particularly related to intensification projects. LEED® project statistics document the following savings<sup>1</sup>:

40-50% reduction in water consumption

50% sewer wastewater reduction

20-100% reduction in storm water runoff

75-90% construction and demolition waste reduction

60% operational waste reduction

### ***2. Lower Operating Costs***

Through reduced energy consumption, water consumption, and maintenance, green buildings can significantly reduce operational costs. For example, they can provide<sup>2</sup>:

25-75% reduction in energy consumption

20-50% water use reduction

Reduced maintenance costs through the use of durable materials and smaller mechanical systems

### ***3. Reduced Greenhouse Gas (GHG) Emissions***

Through energy conservation, reduced transportation of materials, use of low embodied energy materials, and encouraging public transportation, green building initiatives can reduce GHG emissions. Compared to a conventional and inefficient building, a high performance sustainable building will contribute up to 60% less GHGs through design strategies that address the effects and use of material and energy. For owners, the benefits are lower overall life cycle costs, reduced operating costs and more durable buildings.<sup>3</sup>

### ***4. Improved Indoor Environmental Quality***

Green buildings can provide healthier and more comfortable

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<sup>1</sup> LEED Project Statistics

<sup>2</sup> LEED Project Statistics

<sup>3</sup> Athena Institute

environments which, in turn, enhance productivity, and reduce staff turnover and absenteeism. Improvements in indoor air quality also limit any potential liability from unhealthy indoor environments through use of non-toxic materials, better ventilation, and improved air quality measures.

**5. Future Proofing Against Energy and Water Shortages, and Volatile Pricing**

Green buildings can protect owners from the potential gaps in availability of energy and water supplies. Additionally, they can somewhat protect owners against rising energy prices or water metering prices through an increase in local renewable energy production as well as energy and water efficiency measures.

**6. Local Economic Development of the Growing Green Building Industry**

Green building integration can support and encourage the demand for green products and services. A variety of products and services are being manufactured and delivered locally since certification programs such as LEED® favour locally made products.

**Municipal Sustainable Building Policies**

Many municipalities have adopted and implemented corporate sustainable building policies for new construction and major expansions or renovations. Refer to *Appendix A* for a sample of corporate sustainable building policies. The majority have adopted LEED® Silver as a standard for buildings greater than 500 m<sup>2</sup> (5,400 ft<sup>2</sup>). Some include exemptions for specific building types, such as heritage buildings or water/sewage treatment plants.

**Current Status – Burlington**

Incorporating sustainable building practices is increasingly becoming business as usual for Burlington. Both the Performing Art Centre and Appleby Ice Centre projects are slated to meet a LEED® certified (basic) rating. The Transit Operations Centre expansion and new fire station have both been targeted to meet the LEED® silver rating. The Joseph Brant Museum expansion is also being designed to meet a LEED® silver rating. The new Alton Secondary School/Community Centre/Library will be designed using sustainable building measures but will not achieve a formal LEED® rating under the program due to the lack of a LEED® policy at the Halton District School Board, which is the lead partner on the project. The use of renewable energy through solar panels is also being pursued in partnership with Burlington Hydro.

**Ontario Building Code** A recent fact sheet posted on the provincial government's website advises that by 2012 the Building Code's increased energy efficiency requirements will result in "substantial long-term savings as well as reduced greenhouse gas production" for Ontario households and businesses. The Code promotes the use of green technologies and is undergoing continuous revision to reduce barriers to green technologies. A new edition is anticipated to be available at the end of 2011. A building code energy advisory council will be providing advice to the ministry on how to increase energy efficiency and promote green technologies.

**Recommended Policy (see Appendix B for entire policy):**

**Silver – Facilities greater than 500m<sup>2</sup>** It is recommended that a sustainable building standard be implemented where new corporate facilities greater than 500m<sup>2</sup> and major expansions or retrofits must be designed, delivered and certified by the Canada Green Building Council (CaGBC) as being rated LEED<sup>®</sup> silver.

**Less than 500m<sup>2</sup>** Sustainable building practices and the use of local building materials will be applied to new municipal facilities or building retrofits less than 500 m<sup>2</sup> and will be designed to improve efficiency in energy and water usage where possible.

**Energy Efficiency** It is proposed that a target be set where new facilities or major retrofits be at least 30 percent more energy efficient than the Model National Energy Code for Buildings (1997 version).

**Historic Structures** Historic structures are proposed to be exempt from the requirements of the policy. Where facilities are not designated or listed as historic, but are considered to have historic character or value, it is recommended that the applicability of the policy be considered on a case-by-case basis. However, wherever practical, best efforts will be made to incorporate as many sustainable building requirements as possible, without compromising the historical integrity of the structure.

**Applicability of Policy:**

**Ten Year Forecast** Based on the ten year capital budget forecast, there are limited new facilities planned that would be affected by this policy, such as the proposed downtown Roads and Parks Maintenance Facility and a potential new fire station (#9).

**Major Retrofit** During the development of the sustainable building policy, consideration was given to what would be considered a major

retrofit. Very few municipal policies define this. A major retrofit or expansion can be difficult to define given the variations of facilities under the City's control and ownership. A retrofit could be considered major where the inside of the facility is being totally re-built and there is significant renovation to the HVAC (heating, ventilation & air conditioning) system, but the footprint of the facility will remain the same. Or an addition to a facility may be minor compared to the overall footprint of a facility. Therefore, it is recommended that the applicability of the policy to a major expansion or retrofit be determined on a case-by-case basis where the original footprint of the facility meets the minimum area (500m<sup>2</sup>) criteria or if the proposed expansion increases the size beyond 500m<sup>2</sup>.

### **Consultation**

Staff presented the draft report and consulted with the Staff Development Committee as well as the Sustainable Development Committee on this report and the proposed policy.

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### **Financial Matters:**

Determining the incremental cost of a green building is not always a straight forward process, as is noted in the following information:

#### **The Cost of LEED®**

A 2006 study by Davis Langdon (*The Cost of Green Revisited*) had four key conclusions based on an analysis of construction costs for LEED® seeking versus non-LEED® seeking projects:

- There is a very large variation in costs of buildings, even within the same building program category;
- Cost differences between buildings are due primarily to program type;
- There are low cost and high cost green buildings; and,
- There are low cost and high cost non-green buildings.

Trent Berry, a partner with Compass Resource Management Ltd., noted in the article *Towards a Green Building & Infrastructure Investment Fund* (2007) that:

- Establishing the incremental cost of building green is not straight forward.
- Building costs are very sensitive to site-specific factors and to overall building design and characteristics.

In the 2005 report "A Business Case for Green Buildings in Canada" prepared for Industry Canada, based on a review of studies (some noted above), incorporating green building measures into construction projects could result in an increase in capital cost from 0 to 30 percent,

with the majority of studies indicating cost increases of less than 8 percent. However, many green buildings have been achieved with capital cost increases of two percent or less.

The above noted report was prepared five years ago and it may be assumed that over time, knowledge in the building industry continues to grow and, with experience and the growth in the development and use of sustainable building products, construction premiums may be reduced.

**Life Cycle Costing**

Life cycle costing is a methodology which should be considered for each project. The projected operating cost savings based on the use of green, energy efficient building measures considered over a longer term life cycle (20 to 50 years) should provide some of the justification for pursuing a sustainable building approach. Although difficult to measure, other studies have shown benefits from increased productivity, improved indoor air quality, reduced absenteeism and improved corporate image.

**Potential Payback**

The following table has been used by the green building industry to show potential payback depending on the green building rating level achieved<sup>4</sup>:

LEED® Rating	Certified	Silver	Gold	Platinum
LEED® Points	26-32	33-38	39-51	52-69
Energy Savings	25 to 35%	35 to 50%	50 to 60%	> 60%
Annual Utility Savings	\$0.40/ft <sup>2</sup>	\$0.60/ft <sup>2</sup>	\$0.80/ft <sup>2</sup>	\$1.00/ft <sup>2</sup>
Typical Payback	under 3 years	3-5 years	5-10 years	10 + years
Incremental Construction Cost				
Small Buildings	3%	7%	10%	15%
Large Buildings	1%	3%	5%	8%

**Financial Impact – Cost Premium**

It is proposed to implement an eight percent premium to all LEED® qualifying projects. This would be in line with a recent direction from the Executive Budget Committee to budget approximately five percent for sustainable design measures. The additional three percent would cover the cost of monitoring and verification of the sustainable building measures throughout the project, which can be a significant but important undertaking to ensure proper records are available.

An eight percent total premium would ensure sufficient funding available to integrate sustainable building measures into the project, such as upgraded mechanical and electrical equipment for optimized

<sup>4</sup> Enermodal Engineering website: [www.enermodal.com/Canadian/leed\\_explained.html](http://www.enermodal.com/Canadian/leed_explained.html)

energy performance, enhanced commissioning procedures to maximize effectiveness of building systems, and enhanced building specifications. It will also cover the cost requirement for a LEED® professional to verify the project throughout the design and construction process.

**Example –  
Fire Station  
#8**

Currently, the total project costs for the fire station are approximately \$2.5 million. The eight percent premium to achieve LEED® silver is estimated to be approximately \$180,000 (hard and soft costs).

**Registration  
&  
Certification  
Costs**

The actual costs to register a project with the Canada Green Building Council and to certify it are minimal compared to total project costs. For instance, a project the size of the fire station would be approximately \$1,500 to register it at the beginning of the project and \$3,750 to certify it at the completion of the project. These costs are covered by the eight percent LEED® premium.

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**Environmental Matters:**

The LEED® program is more than just achieving an energy efficient building. LEED® is about using more sustainable practices and lessening the organization's ecological footprint through the use of local materials, building products with low volatile organic chemicals (VOC's), reduced demand for local utilities, reduced site impact, and improved demand for sustainable transportation measures.

Following LEED® helps to build a legacy of sustainable building records to assist with future corporate projects. Once the building is finished and operational, complete building and construction records are available to assist with the ongoing management of the facility and guide future decisions related to sustainability.

It is critically important that the City lead by example if we are to be successful in encouraging private sector and institutional groups to build and retrofit using sustainable design features.

**Communication Matters:**

To help raise staff and community awareness of the sustainable and environmental benefits of building sustainable high performance facilities, staff will promote the City's commitment to green building practices through:

- Ongoing media releases,
  - Appropriate signage with interpretive information in new and renovated facilities, and,
  - The development of a green building display to circulate to various municipal facilities and to be used for special events.
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**Conclusion:**

By adopting the attached policy, the City will show that it is serious about its commitment to being a sustainable development community, as declared in 1990. It shows that the City is committed to reducing greenhouse gas emissions, conserving energy, and preventing and reducing waste. Being green should be business as usual whereas building conventional buildings is a commitment to obsolescence.

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Respectfully submitted,

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**Appendices:**

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| A. Corporate Green Building Policy Summary |
| B. Corporate Sustainable Building Policy   |
| C. LEED® Canada NC Project Checklist       |

**Notifications:**  
(after Council decision)

Name	Mailing or E-mail Address

**Approvals:**

\*required

\_\_\_\_\_  
\*Department

\_\_\_\_\_  
City Treasurer

\_\_\_\_\_  
General Manager

\_\_\_\_\_  
City Manager

To be completed by the Clerks Department

Committee  
Disposition &  
Comments


01-Approved 02-Not Approved 03-Amended 04-Referred 06-Received & Filed 07-Withdrawn

Council  
Disposition &  
Comments


01-Approved 02-Not Approved 03-Amended 04-Referred 06-Received & Filed 07-Withdrawn

**APPENDIX A – MUNICIPAL CORPORATE GREEN BUILDING POLICY SUMMARY**

<b>Municipality</b>	<b>Green Building Standard</b>	<b>Building Type/Size</b>	<b>Exemptions</b>	<b>Special Notes</b>
<b>Region of Waterloo</b>	<b>LEED<sup>®</sup> Silver</b>	Regional facilities $\geq$ 500 m <sup>2</sup> (5,400 ft <sup>2</sup> ) of occupied space.	Process facilities such as water pumping or treatment plants	
<b>City of Kitchener</b>	<b>LEED<sup>®</sup> Silver</b>	New City built and owned facilities over 500 m <sup>2</sup> (5,400 ft <sup>2</sup> ).		A higher level of certification can be considered on an individual business case assessment basis.
<b>City of Ottawa</b>	<b>LEED<sup>®</sup> Certified (minimum)</b>	New city buildings with a footprint $\geq$ 500 m <sup>2</sup> (5,400 ft <sup>2</sup> ).	Historic structures but best efforts to be made to incorporate green building requirements.	
<b>Town of East Gwillimbury</b>	<b>LEED<sup>®</sup> Silver</b>	All new town facilities.		
<b>Town of Newmarket</b>	Assess each facility to determine feasibility of meeting <b>LEED<sup>®</sup> Silver</b>	New town facilities		
<b>Town of Richmond Hill</b>	<b>LEED<sup>®</sup> Silver</b>	New town facilities over 500 m <sup>2</sup> (5,400 ft <sup>2</sup> )		Implement sustainable design & construction principles for major retrofit and renovation projects and new projects smaller than 500 m <sup>2</sup> gross floor area on an individual project business case basis.
<b>City of Kingston</b>				Adopted a project based LEED <sup>®</sup> assessment for all large municipal buildings and retrofit projects
<b>Region of York</b>	<b>LEED<sup>®</sup> Silver</b>	All regionally owned facilities $\geq$ 500 m <sup>2</sup> (5,400 ft <sup>2</sup> ).		A higher level of certification can be considered on an individual business case assessment basis.
<b>Town of Banff</b>	<b>LEED<sup>®</sup> Silver (meet or exceed)</b>	All new municipal buildings with a footprint $\geq$ 500 m <sup>2</sup> (5,400 ft <sup>2</sup> )		New municipal buildings smaller than 500 m <sup>2</sup> (5,400 ft <sup>2</sup> ) will be designed to reflect Triple Bottom Line principles.

Municipality	Green Building Standard	Building Type/Size	Exemptions	Special Notes
City of Calgary	LEED® Gold (meet or exceed)	All new municipal buildings with a footprint $\geq 500 \text{ m}^2$ (5,400 $\text{ft}^2$ )		
City of Victoria	LEED® Silver (with a goal of achieving Gold)	All new municipal buildings & additions $\geq 500 \text{ m}^2$ (5,400 $\text{ft}^2$ )		
City of Vancouver	LEED® Gold	All new civic buildings greater than $500 \text{ m}^2$ (5,400 $\text{ft}^2$ )		The city also mandated specific energy points in the LEED® rating system to ensure a 30% reduction in energy consumption.
City of Richmond	LEED® Gold LEED® Silver	Buildings over $2,000 \text{ m}^2$ For major renovations and buildings less than $2,000 \text{ m}^2$		
Federal Government (Public Works & Government Services Canada)	LEED® Gold as a minimum standard	All new office buildings		
Scottsdale, Arizona	LEED® Gold (Strive for platinum whenever project resources and conditions permit)	All city buildings (any size)		Must have a payback of at least 5 years or less.
Seattle, Washington	LEED® Silver	All facilities and buildings over 5,000 gross SF of occupied space. Staff are encouraged to meet higher LEED® rating levels.		Must budget to meet at minimum LEED® silver rating. Budget planning and life cycle cost analysis to achieve a higher rating of gold or platinum is encouraged.
Portland, Oregon	LEED® Gold  LEED® Silver for Existing Buildings (EB)	All new city owned facilities  For city owned, existing buildings.		Policy requires: 75% of all construction & demolition (C&D) waste is recycled; 30% beyond city's SWM manual baseline code requirements; 30% water savings beyond the Energy Policy Act of 9192 baseline code requirements; and 30% energy savings beyond Ch13 of the Oregon Structural Specialty Code baseline requirements.

## **APPENDIX B CORPORATE SUSTAINABLE BUILDING POLICY**

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### **4. ENVIRONMENT**

#### **4.5 Corporate Sustainable Building Policy**

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##### **1.0 BACKGROUND**

In 1992, the City of Burlington declared itself a sustainable development community. Buildings have a significant environmental impact on land, resources, infrastructure as well as climate change. According to the Canadian Green Building Council, buildings in Canada consume:

- 33% of energy produced
- 50% of natural resources
- 12% of water usage (excluding process water for industry).

And they generate:

- 25% of landfill waste
- 10% of airborne particulates
- 35% of greenhouse gases.

To be truly sustainable, green building practices must be part of the corporate culture. By implementing these practices in new facilities and major expansions or renovations, environmental benefits and cost savings can be achieved, such as:

- 40 to 50% reduction in water consumption
- 50% sewer wastewater reduction
- 20 to 100% reduction in stormwater runoff
- 75 to 90% construction and demolition waste reduction
- 50% operational waste reduction.

Green buildings reduce operating costs and lessen demand for municipal infrastructure and services through energy and water conservation measures. Green buildings provide an environmental, social and economic balance in design, construction and operation.

##### **2.0 POLICY**

The City of Burlington will implement a standard for all new municipal buildings greater than 500 m<sup>2</sup> (5,400 ft<sup>2</sup>), with a target of meeting the silver certification in the Leadership in Energy and Environmental Design (LEED®) green building rating system, with some exceptions noted below.

##### **3.0 PURPOSE**

The purpose of the City of Burlington's corporate sustainable building policy is to demonstrate commitment to environmental, social and economic improvements and to provide leadership and guidance in the application and development of sustainable building practices. This policy is intended to:

- 3.1 Align the planning and development of new and renovated municipal buildings with commitments made in the City of Burlington strategic plan, *Future Focus Seven*, the Official Plan, and the corporate energy policy to address sustainability, energy management and conservation, and a reduction in greenhouse gas emissions.
- 3.2 Achieve long-term cost savings through reduced operating costs through improved energy and water efficiency and stormwater management.
- 3.3 Enhance indoor and outdoor environments, and promote a healthy and productive workplace for all city employees and visitors.
- 3.4 Reduce demolition, construction, renovation and operational waste being sent to landfill by encouraging material reuse and recycling.
- 3.5 Encourage sustainable site selection and sustainable transportation modes, such as transit, walking and cycling, to reduce greenhouse gas emissions and improve air quality.
- 3.6 Demonstrate community leadership by committing to sustainable design and development of municipal facilities.

#### **4.0 SCOPE**

The City will target all new municipal buildings with a footprint greater than 500 m<sup>2</sup> (5,400 ft<sup>2</sup>) and major expansions or retrofits to be designed, delivered and certified by the Canada Green Building Council (CaGBC) as being rated LEED<sup>®</sup> silver.

The applicability of the policy to a major expansion or retrofit will be determined on a case-by-case basis where the original footprint of the facility meets the minimum area (500m<sup>2</sup>) criteria for this policy or the expansion increases the footprint of the building beyond 500m<sup>2</sup>.

New municipal facilities or building retrofits less than 500 m<sup>2</sup> must be designed to improve efficiency in energy and water usage and utilize sustainable and local building materials where possible.

All new municipal buildings and retrofits will be designed to be 30 percent for energy efficient than the Model National Energy Code for Buildings (1997 version).

Historic structures shall be exempt from the requirements of this policy. Where facilities are not designated or listed as historic, but are considered to have historic character or value, the applicability of the policy will be considered on a case-by-case basis. Wherever practical, best efforts should be made to incorporate as many sustainable building requirements as possible, without compromising the historical integrity of the structure.

All buildings meeting the requirements of the Sustainable Building Policy shall be designed to achieve the highest, most cost-effective social and environmental performance possible over the life of the facility. Sustainable building design elements shall be incorporated in all buildings as appropriate for the rating system selected.

## **5.0 RESPONSIBILITIES**

The Executive Director of Corporate Strategic Initiatives along with the General Managers of those divisions responsible for the new or retrofitted facility will ensure that this sustainable building policy is appropriately applied to the new or renovated facility under development.

Corporate Strategic Initiatives will be responsible for monitoring and reporting on the implementation of the sustainable building policy.

The executive Director of Corporate Strategic Initiatives in consultation with the General Manager responsible for the new or renovated facility, will have the discretion, in cases where the cost and time required to achieve the applicable rating system outweigh any resulting benefit, to adjust the requirement to a level where the intent of the policy is still met, but achieved in a more cost effective of timely manner.

## **6.0 BUDGETING AND FINANCING**

Utilizing sustainable building techniques result in significantly reduced building operations and maintenance costs; ultimately resulting in significant cost reduction over the life of the building.

Capital budgets for facilities which are impacted by this Policy will be expected to be budgeted to meet the Silver rating where applicable. Budget planning must involve life cycle cost analysis and address both the capital and operating costs.

## **7.0 RELATED POLICIES**

- 7.1 Corporate Energy Policy
- 7.2 Green Procurement Policy and Guideline (under development)

## APPENDIX C



## LEED™ CANADA NC 1.0 PROJECT CHECKLIST

<b>Sustainable Sites</b>		<b>14 Points</b>
Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	Required
Credit 1	<b>Site Selection</b>	1
Credit 2	<b>Development Density</b>	1
Credit 3	<b>Redevelopment of Contaminated Site</b>	1
Credit 4.1	<b>Alternative Transportation</b> , Public Transportation Access	1
Credit 4.2	<b>Alternative Transportation</b> , Bicycle Storage & Changing Rooms	1
Credit 4.3	<b>Alternative Transportation</b> , Alternative Fuel Vehicles	1
Credit 4.4	<b>Alternative Transportation</b> , Parking Capacity	1
Credit 5.1	<b>Reduced Site Disturbance</b> , Protect or Restore Open Space	1
Credit 5.2	<b>Reduced Site Disturbance</b> , Development Footprint	1
Credit 6.1	<b>Stormwater Management</b> , Rate and Quantity	1
Credit 6.2	<b>Stormwater Management</b> , Treatment	1
Credit 7.1	<b>Heat Island Effect</b> , Non-Roof	1
Credit 7.2	<b>Heat Island Effect</b> , Roof	1
Credit 8	<b>Light Pollution Reduction</b>	1
<b>Water Efficiency</b>		<b>5 Points</b>
Credit 1.1	<b>Water Efficient Landscaping</b> , Reduce by 50%	1
Credit 1.2	<b>Water Efficient Landscaping</b> , No Potable Use or No Irrigation	1
Credit 2	<b>Innovative Wastewater Technologies</b>	1
Credit 3.1	<b>Water Use Reduction</b> , 20% Reduction	1
Credit 3.2	<b>Water Use Reduction</b> , 30% Reduction	1
<b>Energy &amp; Atmosphere</b>		<b>17 Points</b>
Prereq 1	<b>Fundamental Building Systems Commissioning</b>	Required
Prereq 2	<b>Minimum Energy Performance</b>	Required
Prereq 3	<b>CFC Reduction in HVAC&amp;R Equipment</b>	Required
Credit 1	<b>Optimize Energy Performance</b>	1 to 10
Credit 2.1	<b>Renewable Energy</b> , 5%	1
Credit 2.2	<b>Renewable Energy</b> , 10%	1
Credit 2.3	<b>Renewable Energy</b> , 20%	1
Credit 3	<b>Best Practice Commissioning</b>	1
Credit 4	<b>Ozone Protection</b>	1
Credit 5	<b>Measurement &amp; Verification</b>	1
Credit 6	<b>Green Power</b>	1
<b>Materials &amp; Resources</b>		<b>14 Points</b>
Prereq 1	<b>Storage &amp; Collection of Recyclables</b>	Required

Credit 1.1	<b>Building Reuse: Maintain 75% of Existing Walls, Floors, and Roof</b>	1
Credit 1.2	<b>Building Reuse: Maintain 95% of Existing Walls, Floors, and Roof</b>	1
Credit 1.3	<b>Building Reuse: Maintain 50% of Interior Non-Structural Elements</b>	1
Credit 2.1	<b>Construction Waste Management: Divert 50% from Landfill</b>	1
Credit 2.2	<b>Construction Waste Management: Divert 75% from Landfill</b>	1
Credit 3.1	<b>Resource Reuse: 5%</b>	1
Credit 3.2	<b>Resource Reuse: 10%</b>	1
Credit 4.1	<b>Recycled Content: 7.5% (post-consumer + ½ post-industrial)</b>	1
Credit 4.2	<b>Recycled Content: 15% (post-consumer + ½ post-industrial)</b>	1
Credit 5.1	<b>Regional Materials: 10% Extracted and Manufactured Regionally</b>	1
Credit 5.2	<b>Regional Materials: 20% Extracted and Manufactured Regionally</b>	1
Credit 6	<b>Rapidly Renewable Materials</b>	1
Credit 7	<b>Certified Wood</b>	1
Credit 8	<b>Durable Building</b>	1

**Indoor Environmental Quality** 15 Points

Prereq 1	<b>Minimum IAQ Performance</b>	Required
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	Required
Credit 1	<b>Carbon Dioxide (CO<sub>2</sub>) Monitoring</b>	1
Credit 2	<b>Ventilation Effectiveness</b>	1
Credit 3.1	<b>Construction IAQ Management Plan: During Construction</b>	1
Credit 3.2	<b>Construction IAQ Management Plan: Testing Before Occupancy</b>	1
Credit 4.1	<b>Low-Emitting Materials: Adhesives &amp; Sealants</b>	1
Credit 4.2	<b>Low-Emitting Materials: Paints and Coating</b>	1
Credit 4.3	<b>Low-Emitting Materials: Carpet</b>	1
Credit 4.4	<b>Low-Emitting Materials: Composite Wood and Laminate Adhesives</b>	1
Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	1
Credit 6.1	<b>Controllability of Systems: Perimeter Spaces</b>	1
Credit 6.2	<b>Controllability of Systems: Non-Perimeter Spaces</b>	1
Credit 7.1	<b>Thermal Comfort: Compliance</b>	1
Credit 7.2	<b>Thermal Comfort: Monitoring</b>	1
Credit 8.1	<b>Daylight &amp; Views: Daylight 75% of Spaces</b>	1
Credit 8.2	<b>Daylight &amp; Views: Views 90% of Spaces</b>	1

**Innovation & Design Process** 5 Points

Credit 1.1	<b>Innovation in Design</b>	1
Credit 1.2	<b>Innovation in Design</b>	1
Credit 1.3	<b>Innovation in Design</b>	1
Credit 1.4	<b>Innovation in Design</b>	1
Credit 2	<b>LEED® Accredited Professional</b>	1

**Project Totals (pre-certification estimates)** 70 Points

**Certified** 26-32 points   **Silver** 33-38 points   **Gold** 39-51 points   **Platinum** 52-70 points