

Guidance for Canadian Projects  
using LEED 2009 for  
Neighbourhood Development

May 2012



## **PREFACE FROM THE CAGBC**

The built environment has a profound impact on our natural environment, economy, health, and productivity. Breakthroughs in building science, technology, and operations are now available to designers, builders, operators, and owners who want to build green and maximize both economic and environmental performance.

The green building movement offers an unprecedented opportunity to respond to the most important challenges of our time, including global climate change, dependence on non sustainable and expensive sources of energy, and threats to human health. The work of innovative building professionals is a fundamental driving force in the green building movement. Such leadership is a critical component to achieving the Canada Green Building Council's (CaGBC's) vision of a transformed built environment leading to a sustainable future.

### **CaGBC Membership**

The CaGBC's greatest strength is the diversity of our membership. CaGBC is a balanced, consensus based not-for-profit with more than 2,300 member companies and organizations. Since its inception in 2002, CaGBC has played a vital role in providing a leadership forum and a unique, integrating force for the building industry. CaGBC's programs have three distinguishing characteristics:

#### **Committee-based**

The heart of this effective coalition is our committee structure, in which volunteer members work with staff and expert consultants to design and implement strategies. Our committees provide a forum for members to resolve differences, build alliances, and forge cooperative solutions for influencing change in all sectors of the building industry.

#### **Member-Driven**

Membership is open and balanced and provides a comprehensive platform for carrying out important programs and activities. We target the issues identified by our members as the highest priority. We conduct an annual review of achievements that allows us to set policy, revise strategies, and devise work plans based on members' needs.

#### **Consensus-Focused**

We work together to promote green buildings and, in doing so, we help to foster greater economic vitality and environmental health at lower costs. We work to bridge ideological gaps between industry segments to develop balanced policies and programs that benefit the entire industry.

#### **For more information:**

Contact the Canada Green Building Council  
47 Clarence St., Suite 202  
Ottawa, Ontario K1N 9K1  
phone: 1-866-941-1184  
fax: 1-613-241-4782  
info@cagbc.org  
www.cagbc.org

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Jamie James, Co-Chair  
Dan Leeming, Co-Chair  
Nathalie Boucher  
Larry Brydon  
Rob Buchan  
Marisa Creatore

Eben Hamilton  
Elana Horowitz  
Steve Krossey  
Glenn MacMillan  
Gavin Maher  
Faisal Moola

Odete Pinho  
Doug Pollard  
Michael Pozzebon  
Rodney Wilts

## CONTENTS

1.0	Alternative Compliance Paths for Canadian Projects .....	6
2.0	How to use this Document .....	6
3.0	Submitting for Certification using LEED Online .....	6
4.0	Form Guidance and Reference Materials by Credit.....	8
4.1	Smart Location and Linkage.....	8
	SLLp1 Smart Location, Option 3 Transit Corridor or Route with Adequate Transit Service (For Projects with Planned Transit Service Only).....	8
	SLLp2 Imperiled Species and Ecological Communities .....	8
	SLLp3 Wetland and Water Body Conservation .....	10
	SLLp4 Agricultural Land Conservation.....	11
	SLLp5 Floodplain Avoidance.....	12
	SLLc1 Preferred Locations, Option 3: Designated High-Priority Locations .....	13
	SLLc2 Brownfields Redevelopment, Option 2: Designated High-Priority Location .....	14
	SLLc3 Locations with Reduced Automobile Dependence, Option 2: Dissemination Areas with Low Automobile Mode Split or low VKT.....	16
	SLLc5 Housing and Jobs Proximity .....	17
	SLLc6 Steep Slope Protection .....	17
	SLLc7 Site Design for Habitat or Wetland and Water Body Conservation .....	18
4.2	Neighbourhood Pattern and Design .....	19
	NPDp1 Walkable Streets.....	19
	NPDp2 Compact Development.....	19
	NPDc3 Mixed-use Neighborhood Centers [for Projects with Regional-Serving Retail of 13 940 or More Square Metres (150,000 or More Square Feet)].....	19
	NPDc7 Transit Facilities .....	20
	NPDc9 Access to Civic and Passive Use Spaces.....	20
	NPDc10 Access to Recreation Facilities .....	21
	NPDc11 Visitability and Universal Design .....	21
	NPDc12 Community Outreach and Involvement .....	22
	NPDc13 Local Food Production.....	22

4.3 Green Infrastructure and Buildings .....	23
GIBp2 Minimum Building Energy Efficiency and GIBc2 Building Energy Efficiency .....	23
GIBp3 Minimum Building Water Efficiency and GIBc3 Building Water Efficiency .....	26
GIBc4 Water-Efficient Landscaping .....	27
GIBc5 Existing Building Reuse.....	27
GIBc6 Historic Resource Preservation and Adaptive Use .....	28
GIBc7 Minimized Site Disturbance in Design and Construction.....	31
GIBc8 Stormwater Management .....	31
GIBc9 Heat Island Reduction.....	32
GIBc11 On-Site Renewable Energy Sources .....	32
GIBc12 District Heating and Cooling .....	33
GIBc13 Infrastructure Energy Efficiency .....	34
GIBc14 Wastewater Management .....	34
GIBc15 Recycled Content in Infrastructure.....	35
GIBc16 Solid Waste Management Infrastructure .....	35
GIBc17 Light Pollution Reduction.....	36

## 1.0 ALTERNATIVE COMPLIANCE PATHS FOR CANADIAN PROJECTS

This guidance document provides context for the Alternative Compliance Paths (ACPs) for Canadian projects using LEED-ND 2009, released in July 2011. To see the complete text of the ACPs, view the [LEED 2009 for Neighbourhood Development Rating System with ACPs for Canadian Projects](#) on the Canada Green Building Council's website. The purpose of these ACPs is to set specific Canadian equivalencies to prerequisites and credits in the LEED-ND rating system where U.S.-based standards and methods are infeasible for Canadian projects to use. The ACPs do not increase or decrease stringency of the requirements, and are intended only for the Canadian market.

## 2.0 HOW TO USE THIS DOCUMENT

Topics covered within this document include:

1. Instructions for using LEED Online to submit documentation for the ACPs.
2. Certification submittals for some of the ACPs (where necessary).
3. Helpful reference materials related specifically to the standards and methods in the ACPs.

Each credit is covered in rating system order, if submittal or reference material is necessary for the particular credit. Credits not covered either have no ACP for Canadian projects or the ACP does not require extra materials.

## 3.0 SUBMITTING FOR CERTIFICATION USING LEED ONLINE

For the most part, Canadian project teams should submit for certification using [LEED Online](#) following the same procedures as U.S. projects. LEED Online is a web-based tool provided by the U.S. Green Building Council to register and certify projects for LEED Certification. For general information about using LEED Online, a project team can view an introduction to the system and demos on the [LEED Online](#) home page. Additional questions regarding the LEED Online platform and/or functionality can be submitted via the "Feedback" link at the bottom of the page.

Once a project team registers a project in LEED Online, it will have access to all of the prerequisite and credit forms necessary to complete a certification review. These forms house submittal or documentation requirements that every project must adhere to in order to show compliance with a given prerequisite or credit. *Note that a prerequisite/credit form must always be completed for any attempted prerequisite/credit* – what will vary, depending on the ACP, is how much of the form can be completed and how much should be skipped because it does not apply if the ACP is pursued. Sometimes, a project team will be able to complete the form in its entirety without any special accommodations or additions. Other times, project teams must provide additional submittals or narrative explanations based on the requirements of the ACP. In this case, always use the "Special Circumstances" section (see screenshot below) at the end of each form to provide the ACP documentation.

## ADDITIONAL DETAILS

- Special circumstances preclude documentation of credit compliance with the submittal requirements outlined in this form.

### SPECIAL CIRCUMSTANCES

Describe the circumstances limiting the project team's ability to provide the submittals required in this form. Be sure to reference what additional documentation has been provided, if any. Non-standard documentation will be considered upon its merits.

- Upload SLLc1-SC. Provide any additional documentation that supports the claim to special circumstances. (Optional)

When a project team is pursuing a prerequisite or credit using an ACP for Canadian projects, project teams should consult this document to see if it includes form guidance (see Section 4.0 below) for the prerequisite or credit pursued.

1. If the credit has an ACP but no form guidance, this is because the ACP is a simple substitution of a Canadian standard for a U.S. standard. In this case, simply submit all of the required elements in the form using submittals related to the Canadian standard instead of the U.S. standard. An example would be NPDC14: Tree-Lined and Shaded Streets, in which a reference to the USDA is replaced with a reference to the Canadian Food Inspection Agency.
2. If the ACP includes form guidance, use this guidance to complete the credit form in LEED Online.

Always keep in mind:

- If a project team is instructed to skip part of a credit form because it does not apply to the ACP, no points will document at the bottom of the form (e.g. a project team may see '0 points' or 'N' in the case of a prerequisite). This is acceptable, and will not negatively affect a project team review.
- Remember to convert metric units to imperial with the exception of the ACP for GIBp2: Minimum Building Energy Efficiency
- Always check the "Special Circumstances" box at the end of the form if a project team is pursuing an ACP. Even if a project team does not have any Canada-specific submittals, please still note in the Special Circumstances narrative box that an ACP is being pursued.
- Regional Priority credits are not available to projects outside the U.S.

## 4.0 FORM GUIDANCE AND REFERENCE MATERIALS BY CREDIT

Please use the following guidance for the prerequisites and credits below as a tool to assist in successfully completing the corresponding LEED Online form and uploading the appropriate submittal documentation.

### 4.1 Smart Location and Linkage

#### SLLp1 Smart Location, Option 3 Transit Corridor or Route with Adequate Transit Service (For Projects with Planned Transit Service Only)

##### **Form Guidance**

Complete the PI Form 3: Project Location and Base Mapping in its entirety. Under 'Transit Service', select 'yes' and how the project will document transit service. If the project is documenting *planned* transit service (as opposed to *existing* transit service), complete the 'Planned Transit Service' section. Under 'Planned Transit Service', input the occupancy date for planned transit to be completed and select "Planned bus, streetcar, bus rapid transit (BRT), and/or ferry is locally funded" checkbox. Submit a letter from the transit agency and all other relevant and required uploads for this form.

#### **Additional Resources (for projects using SLLp1: Option 4)**

InfoCanada

[www.infocanada.ca](http://www.infocanada.ca)

This website provides information about Canadian businesses.

#### SLLp2 Imperiled Species and Ecological Communities

##### **Canadian Referenced Standards**

Environment Canada – Species at Risk

<http://www.ec.gc.ca/nature/default.asp?lang=En&n=FB5A4CA8-1>

Provincial/territorial endangered species acts vary in their criteria for listing species at risk and requirements for protection. The Environment Canada website provides links to the Species at Risk Public Registry, as well as to regional listings for provinces and territories.

Environment Canada – Recovery

[http://www.sararegistry.gc.ca/sar/recovery/default\\_e.cfm](http://www.sararegistry.gc.ca/sar/recovery/default_e.cfm)

Provides links to further information about Recovery Strategies and Action Plans (for threatened, endangered, and extirpated species), and management plans (for species of special concern and their habitats).



Species at Risk Act (SARA)

[http://www.sararegistry.gc.ca/approach/act/default\\_e.cfm](http://www.sararegistry.gc.ca/approach/act/default_e.cfm)

The Species at Risk Act is a key federal government commitment to prevent wildlife species from becoming extinct and secure the necessary actions for their recovery. It provides for the legal protection of wildlife species and the conservation of their biological diversity.

Species at Risk Public Registry

[http://www.sararegistry.gc.ca/default\\_e.cfm](http://www.sararegistry.gc.ca/default_e.cfm)

National government source for news, information, and documents related to species at risk in Canada.

**Additional Resources**

Association of Fish and Wildlife Agencies

[http://www.fishwildlife.org/where\\_canadian.html](http://www.fishwildlife.org/where_canadian.html)

The Association of Fish and Wildlife Agencies provides links to fish and wildlife agencies in some Canadian provinces and territories.

BC Species and Ecosystems Explorer

<http://a100.gov.bc.ca/pub/eswp/>

The BC Species and Ecosystems Explorer is a source for authoritative conservation information on approximately 6000 plants and animals, and over 600 ecological communities (ecosystems) in British Columbia. The BC Species and Ecosystems Explorer can be used to generate lists of provincial species and ecological communities based on a number of criteria options, including conservation or legal status, and spatial distribution.

Canadian Land Trust Alliance

<http://www.clta.ca/>

The Canadian Land Trust Alliance (CLTA) website has links to land trusts across Canada. All CLTA members are obligated to adhere to the CLTA's "2005 Canadian Land Trust Standards and Practices" as the ethical and technical guidelines for the responsible operation of a land trust.

E-Flora BC: Electronic Atlas of the Plants of British Columbia

<http://www.geog.ubc.ca/biodiversity/eflora/>

E-Flora BC provides information on the biology, geography and identification of the wild plant and fungi species of British Columbia, including information on invasive plants.

Evergreen Native Plants Database

<http://nativeplants.evergreen.ca/>

The Evergreen Native Plant Database is an easy-to-use, educational, interactive resource with information about native plant species for all of Canada. The database includes native trees, shrubs, wildflowers, grasses and vines. It contains detailed information about each species, encompasses all of Canada, and is being updated and improved on an on-going basis.

FLORA Ontario – Integrated Botanical Information System (FOIBIS)

<http://www.uoguelph.ca/foibis/>

FOIBIS includes about 5,039 species, including vascular plants, bryophytes and lichens, that grow in the province of Ontario. It includes native species as well as some ornamentals, weeds, invasive alien plants, arctic disjuncts and agricultural plants. Information about phytogeography, rarity, a vegetation alpha code system, and botanical nomenclature is presented.

NatureServe Canada

<http://www.natureserve-canada.ca/>

This website provides links to NatureServe's network of conservation data centres operating across Canada.

### **SLLp3 Wetland and Water Body Conservation**

#### ***Implementation***

Note that "Mitigation banking is a method of compensation which plays a key role in wetland conservation in the United States, but thus far is not part of the Canadian conservation landscape" [p. 16, "*Wetlands Mitigation in Canada; A Framework for Application* (Environment Canada, 2000). Available at: <http://www.wetlandscanada.org/Wetland%20Mitigation%202000-1.pdf>]. Canada uses the term "mitigation" differently than the U.S. In Canada, it refers mostly to the avoidance of wetland impacts, while "compensation" generally includes what is referred to in the U.S. as "mitigation banking." Canada does not have a national system of mitigation banking, but there are compensation requirements, generally administered by local/regional authorities. If compensation is required by local or federal authorities, contact the local or regional planning authority or relevant environmental agencies to determine how to compensate for impacts on on-site wetlands.

#### ***Additional Resources***

Atlas of Canada – Wetlands

[http://atlas.nrcan.gc.ca/site/english/learningresources/theme\\_modules/wetlands/index.html](http://atlas.nrcan.gc.ca/site/english/learningresources/theme_modules/wetlands/index.html)

Natural Resources Canada website providing information on location of significant Canadian wetlands, fauna associated with them and the pressures wetlands are under.

Ducks Unlimited Canada

<http://www.ducks.ca/>

Ducks Unlimited Canada conducts wetland and waterfowl research, works to change policy with regards to wetland and habitat conservation, and delivers wetland and environmental education programs. This website provides information on current issues, conservation programs, and Canadian priorities, as well as an extensive research library.

Environment Canada – Wetlands

<http://www.ec.gc.ca/default.asp?lang=En&n=540B1882-1>

This website provides information about wetlands in Canada, with links to a variety of partner organizations, programs, resources, and current issues.

**SLLp4 Agricultural Land Conservation****Implementation**

To determine whether Class 1, 2 and 3 lands occur on the site, visit the GeoGratis Canada Land Inventory website and view Soil Capability for Agriculture GIS data for the appropriate area. Information can be viewed without GIS directly through the GeoGratis website. If Canada Land Inventory soil capability for agriculture data for the project site are unavailable on-line, contact the provincial or regional Agriculture and Agri-Food Canada office to determine if additional agricultural soil classification maps are available for the appropriate area. If agricultural soil classification data is unavailable for the project area, undertake a soils assessment for agricultural capability. Using a qualified agricultural scientist, assess project soils according to the Canada Land Inventory Land Capability Class Descriptions for Agriculture.

**Canadian Referenced Standards**

Canada Land Inventory

<http://sis.agr.gc.ca/cansis/nsdb/cli/classdesc.html>

<http://geogratias.cgdi.gc.ca/>

The Canada Land Inventory is a comprehensive multi-disciplinary land inventory of rural Canada, covering over 2.5 million square kilometres of land and water. Land capability for agriculture, forestry, wildlife, recreation, wildlife (ungulates and waterfowl) was mapped.

**Land Capability Classes for Mineral Soils (as per the above standard)**

<b>CLASS 1</b>	Land in this class either has no or only very slight limitations that restrict its use for the production of common agricultural crops.
	Land in Class 1 is level or nearly level. The soils are deep, well to imperfectly drained under natural conditions, or have good artificial water table control, and hold moisture well. They can be managed and cropped without difficulty. Productivity is easily maintained for a wide range of field crops.
<b>CLASS 2</b>	Land in this class has minor limitations that require good ongoing management practices or slightly restrict the range of crops, or both.
	Land in class 2 has limitations which constitute a continuous minor management problem or may cause lower crop yields compared to Class 1 land but which does not pose a threat of crop loss under good management. The soils in Class 2 are deep, hold moisture well and can be managed and cropped with little difficulty.
<b>CLASS 3</b>	Land in this class has limitations that require moderately intensive management practices or moderately restrict the range of crops, or both.
	The limitations are more severe than for Class 2 land and management practices are more difficult to apply and maintain. The limitations may restrict the choice of suitable crops or affect one or more of the following practices: timing and ease of tillage, planting and harvesting, and methods of soil conservation.

Prime farmland includes Class 1, 2 and 3 lands as defined by the Canada Land Inventory for rural Canada, and any other land protected by a regional or provincial/territorial farmland reserve or farmland protection program. Previously developed land is not considered prime farmland.

### **Additional Resources**

Agriculture and Agri-Food Canada

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1173891539663&lang=eng>

Agriculture and Agri-Food Canada (AAFC) provides information, research and technology, and policies and programs to achieve security of the food system, health of the environment and innovation for growth.

Canada Land Inventory

<http://sis.agr.gc.ca/cansis/nsdb/cli/classdesc.html>

<http://geogratias.cgdi.gc.ca/>

The Canada Land Inventory is a comprehensive multi-disciplinary land inventory of rural Canada, covering over 2.5 million square kilometres of land and water. Land capability for agriculture, forestry, wildlife, recreation, wildlife (ungulates and waterfowl) was mapped.

Statistics Canada

[www.statcan.gc.ca](http://www.statcan.gc.ca)

This is the website for Statistics Canada, Canada's central statistical agency, which conducts a census every five years.

### **SLLp5 Floodplain Avoidance**

#### **Form Guidance**

Option 1: Sites without Floodplains - Complete the form in its entirety. Use the "Special Circumstances" Box to name and describe the local floodplain agency. Submit all relevant and required uploads for this prerequisite.

Option 2: Infill or Previously Developed Site with Floodplains - Complete the form in its entirety (*note: nonconveyance areas are not applicable to Canadian projects*). Use the "Special Circumstances" Box to name the local floodplain agency, describe the local floodplain standards used, and explain how the project complies with the local standard requirements for developing within 100-year moderate- and high-risk floodplains. Submit all relevant and required uploads for this prerequisite.

Option 3: All Other Sites with Floodplains - Please refer to the guidance above for SLLp5: Floodplain Avoidance, Option 2.

### **Additional Resources**

Smart Growth Canada Network

[http://www.smartgrowth.ca/home\\_e.html](http://www.smartgrowth.ca/home_e.html)

The Smart Growth Canada Network (SGCN) is a national organization founded in May 2003 to help advance the implementation of smart growth and sustainability principles across the country through

education, research and capacity building strategies for the broad range of decision makers. The website outlines smart growth principles and provides links to courses, reports, and partner organizations.

### **SLLc1 Preferred Locations, Option 3: Designated High-Priority Locations**

#### ***Form Guidance***

For Option 3, complete the form in its entirety, marking the U.S. high-priority location that is most equivalent to the corresponding Canadian high-priority location. Use the "Special Circumstances" box to describe how the Canadian priority location is equivalent to the checked U.S. high-priority location OR to refer to an upload that describes how the Canadian location criteria are equivalent. Submit all relevant and required uploads for this credit.

#### ***Additional Resources***

Canadian Council on Social Development

<http://www.ccsd.ca/home.htm>

The CCSD is a non-profit NGO dedicated to promoting progressive social policies inspired by social justice, equality and empowerment of individuals and communities. Useful definitions on poverty (<http://www.ccsd.ca/pubs/2001/povertypp.htm>) as well as numerous research publications are available for consultation (<http://www.ccsd.ca/research.htm>). The CCSD also established the Urban Poverty Project in 2007 and launched the Community Profiles initiative, providing data on thirteen critical social indicators for over 100 places in Canada, using 2001 census data ([http://www.ccsd.ca/pubs/2007/upp/community\\_profiles/index.htm](http://www.ccsd.ca/pubs/2007/upp/community_profiles/index.htm)).

Community Information Database

<http://www.cid-bdc.ca/english/index.html>

The CID is an excellent way to access data on various communities across Canada in an interactive map-design layout. It provides socio-economic as well as demographic data at four different levels: community, census division, economic region, and province/territory. Users are able to select various combinations of census data, see it spatially displayed, and produce snapshots on specific areas.

National Council of Welfare

<http://www.ncw.gc.ca/h.4m.2@-eng.jsp>

This governmental Council of Welfare advises the Minister of Human Resources and Skills Development on issues of poverty and low-income Canadians. Poverty Profiles for communities spanning all of Canada (<http://www.ncw.gc.ca/c.4mm.5n.3ty@-eng.jsp?cmid=3>), data sets, and links to Canadian and International anti-poverty plans and strategies are available on the website.

Neighbourhoods Alive! Government of Manitoba

<http://www.gov.mb.ca/housing/neighbourhoods/>

This Manitoba-based organization provides support to community organizations to rebuild neighbourhoods with funding and planning assistance. Information on the various programs they offer, including the Neighbourhood Renewal Fund and Community Initiatives Program, are

available. A list of designated Neighbourhoods Alive! communities and Neighbourhood Renewal Corporations are also provided.

(<http://www.gov.mb.ca/housing/neighbourhoods/designated.html>).

Strong Neighbourhoods Taskforce, City of Toronto and United Way  
[http://www.strongneighbourhoods.ca/taskforce\\_info.html](http://www.strongneighbourhoods.ca/taskforce_info.html)

This partnership between the City of Toronto and United Way addresses the issues of poverty, underemployment, lack of services and new immigrant integration and develops tools to help enhance life in the city. In-depth profiles of specific neighbourhoods are also available on the website.

### **SLLc2 Brownfields Redevelopment, Option 2: Designated High-Priority Location**

#### ***Form Guidance***

For Option 2, please refer to the guidance above for SLLc1: Preferred Locations, Option 3: Designated High-Priority Locations.

#### ***Implementation***

There must be a brownfield or contaminated area within the project boundary for the project to achieve the credit.

If contamination is suspected, conduct a Phase II environmental site assessment (as documented by CSA Z769-00 or equivalent in your jurisdiction) to determine whether remediation of the site is necessary. The Phase II assessment requires that an environmental professional test the soil, air, and water to identify what kinds of contaminants exist and at what levels. The type of tests conducted varies, but typically the easiest and least expensive methods are used initially and involve taking samples, which are then sent to a laboratory for analysis. This initial sampling screens for broad categories of contaminants. If sufficient contamination is found or further investigation is needed, more sophisticated tests must be performed. Contaminant-specific testing involves more time and additional cost but is needed to identify specific contaminants and determine effective remediation strategies, if required.

#### ***Canadian Referenced Standards***

Referenced standards for this credit differ by province and territory and by the regulatory agency having jurisdiction over the site. Project teams must use standards appropriate for their site. Project teams may also find the following Canadian Standards Association documentation useful for a description of Phase I and Phase II Environmental Site Assessments. Note that the jurisdiction having authority over the site may use alternate terms or equivalencies.

Canadian Standards Association (CSA) Z768-01, Phase I Environmental Site Assessment

<http://www.csa.ca>

A Phase I environmental site assessment is defined by the standard as the systematic process by which an Assessor seeks to determine whether a particular property is or may be subject to actual or potential contamination. The process is non-intrusive, i.e.: there is no soil sampling drilling of boreholes or sampling of building materials. A Phase I environmental site assessment

is concerned with the environmental condition of the property itself, not compliance with environmental laws, but may assist in reducing uncertainty about potential environmental liabilities and may be a basis for further investigation of the property. The inspiration for the Canadian standard was ASTM E1527.

Canadian Standards Association (CSA) Z769-00, Phase II Environmental Site Assessment  
<http://www.csa.ca>

A Phase II environmental site assessment is defined by the standard as the systematic, iterative process, as outlined in the Standard, by which an Assessor seeks to characterize and/or delineate the concentrations of quantities of substances of concern related to a site and compare those levels to criteria. A Phase II environmental site assessment involves sampling, analysing and measuring, and for that reason is generally considered an “intrusive” investigation. Such investigations can be carried out for a variety of reasons – in the acquisition of property or a business as part of due diligence or as a condition of financing, to identify a baseline for a new tenant occupying a site, or as a component of the environmental risk management and remediation strategy of an organization.

### ***Additional Resources***

ASTM International  
<http://www.astm.org>

ASTM produced two important standards on contaminated site assessments: ASTM E1527-05, Phase I Environmental Site Assessment and ASTM E1903-97, Phase II Environmental Site Assessment, effective 2002. These standards were used as the base for CSA Z768-01 and Z769-00.

Brownfield Redevelopment  
<http://nrtee-trnee.ca/>

National Round Table on the Environment and the Economy (NRTEE). This site describes the NRTEE program to identify barriers to brownfield redevelopment and to make recommendations for improvement.

Canadian Brownfields Network  
[www.canadianbrownfieldsnetwork.ca/](http://www.canadianbrownfieldsnetwork.ca/)

The CBN is a national advocacy network that represents the interests of brownfield practitioners and stakeholders who want to effect change and address the barriers associated with brownfield redevelopment in Canada.

Canadian Council of Ministers of the Environment  
<http://www.ccme.ca/>

This website has a catalogue of publications with numerous documents relevant to contaminated sites.

Federal Contaminated Sites, Government of Canada  
<http://www.federalcontaminatedsites.gc.ca/index-eng.aspx>

This website provides information sources on or related to the Federal Contaminated Sites Action Plan for members of the public and stakeholders.

Federal Contaminated Sites Inventory, Government of Canada  
<http://www.tbs-sct.gc.ca/fcsi-rscf/home-accueil-eng.aspx>

This is a national database that lists contaminated/hazardous federal sites throughout Canada's provinces and territories. This program uses the National Classification System for Contaminated Sites to identify high, medium, and low priority sites.

### ***Additional Definitions***

A **Brownfield Site** or **Contaminated Site** is a site where below-grade "substances occur in concentrations that:

1. are above background levels and pose, or are likely to pose, an immediate or long-term hazard to human health or the environment; or
2. exceed the levels specified in policies and regulations."

**In situ remediation** involves treating contaminants in place using injection wells, reactive trenches, or other technologies that take advantage of the natural hydraulic gradient of groundwater; they usually minimize disturbance of the site.

**Remediation** is the process of cleaning up a contaminated site by physical, chemical, or biological means. Remediation processes are typically applied to contaminated soil and groundwater.

A **site assessment** is an evaluation of a site's aboveground and subsurface characteristics, including its structures, geology, and hydrology. Site assessments are typically used to determine whether contamination has occurred, as well as the extent and concentration of any release of pollutants. Information generated during a site assessment is used to make remedial action decisions.

### **SLLc3 Locations with Reduced Automobile Dependence, Option 2: Dissemination Areas with Low Automobile Mode Split or low VKT**

#### ***Form Guidance***

If pursuing the ACP for Option 2, do not complete the Option 2 section of the form. Skip directly to the "Special Circumstances" section. Use the "Special Circumstances" box to name the Statistics Canada Dissemination Area (DA), Census Metropolitan Area (CMA)/Census Agglomeration (CA), and the date of the census data. Confirm that the data is derived from the most recent available. Calculate the vehicle kilometres traveled (VKTs) or automobile mode split for the DA as a percentage of average VKTs or automobile mode split of the relevant CMA/CA. Upload a map with the DA boundaries in relation to the project boundary, and any other documents needed to show calculations, if these were not provided in the narrative box.

For projects pursuing the peer-reviewed analysis option, provide an executive summary of the analysis, confirm that it was conducted by a qualified transportation professional, and explain how the peer review is supported by a third party not affiliated with the sponsor of the project or the author of analysis.



### ***Implementation***

For Option 2, contact Statistics Canada for data for both the DA(s) (if project covers more than one DA, use an average of all DAs that include a portion of the project), and for the project's CMA or CA, to determine whether the DA(s) where the project is located has an automobile mode split or VKT rates that are less than 90% of the average automobile mode split or VKT rates for the CMA or CA as a whole. For DA(s) with no residential population, use the automobile mode split from the "Place of Work" census Target Group Profile instead of the "Place of Residence" Profile.

### **SLLc5 Housing and Jobs Proximity**

#### ***Additional Resources***

InfoCanada

[www.infocanada.ca](http://www.infocanada.ca)

This website provides information about Canadian businesses.

### **SLLc6 Steep Slope Protection**

#### ***Additional Resources***

Canadian Land Trust Alliance

<http://www.clta.ca/en/>

The Canadian Land Trust Alliance (CLTA) website has links to land trusts across Canada. All CLTA members are obligated to adhere to the CLTA's "2005 Canadian Land Trust Standards and Practices" as the ethical and technical guidelines for the responsible operation of a land trust.

E-Flora BC: Electronic Atlas of the Plants of British Columbia

<http://www.geog.ubc.ca/biodiversity/eflora/>

E-Flora BC provides information on the biology, geography and identification of the wild plant and fungi species of British Columbia, including information on invasive plants.

Evergreen Native Plants Database

<http://nativeplants.evergreen.ca/>

The Evergreen Native Plant Database is an easy-to-use, educational, interactive resource with information about native plant species for all of Canada. The database includes native trees, shrubs, wildflowers, grasses and vines. It contains detailed information about each species, encompasses all of Canada, and is being updated and improved on an on-going basis.

FLORA Ontario – Integrated Botanical Information System (FOIBIS)

<http://www.uoguelph.ca/foibis/>

FOIBIS includes about 5,039 species, including vascular plants, bryophytes and lichens, that grow in the province of Ontario. It includes native species as well as some ornamentals, weeds, invasive alien plants, arctic disjuncts and agricultural plants. Information about phytogeography, rarity, a vegetation alpha code system, and botanical nomenclature is presented.

## **SLLc7 Site Design for Habitat or Wetland and Water Body Conservation**

### ***Additional Resources***

Ontario Ministry of Natural Resources; Municipal Planning for Biodiversity, Natural Heritage Systems, Features

<http://www.mnr.gov.on.ca/en/Business/LUEPS/2ColumnSubPage/271830.html>

This website provides links to technical guidance on natural heritage policies in Ontario's Provincial Policy Statement, and additional provincial land use planning documents that contain policy, implementation direction, or other supporting guidance.

## 4.2 Neighbourhood Pattern and Design

### NPDp1 Walkable Streets

#### *Additional Resources*

B.C. Physical Activity Strategy – Built Environment and Active Transportation

<http://www.physicalactivitystrategy.ca/index.php/beat/links/>

This website provides resources such as community assessment tools and best practices for promoting active transportation through land use, site design, and the built environment. Includes toolkits, checklists, and strategies for promoting active transportation during winter in northern climates.

Canadian Institute of Transportation Engineers

<http://www.cite7.org/resources/documents/ITERP-PromotingSustainableTransportationThroughSiteDesign.pdf>

Promoting Sustainable Transportation Through Site Design (2004) recommends site design practices that can be applied through the land development process to promote the use of more sustainable modes of passenger transportation, such as walking, cycling and transit.

### NPDp2 Compact Development

#### *Additional Resources*

Smart Growth Canada Network

[http://www.smartgrowth.ca/home\\_e.html](http://www.smartgrowth.ca/home_e.html)

The Smart Growth Canada Network (SGCN) is a national organization founded in May 2003 to help advance the implementation of smart growth and sustainability principles across the country through education, research and capacity building strategies for the broad range of decision makers. The website outlines smart growth principles and provides links to courses, reports, and partner organizations.

### NPDc3 Mixed-use Neighborhood Centers [for Projects with Regional-Serving Retail of 13 940 or More Square Metres (150,000 or More Square Feet)]

#### *Form Guidance*

Please refer to the guidance for SLLp1: Smart Location, Option 3 above.

## **NPDc7 Transit Facilities**

### ***Additional Resources***

Canadian Urban Transit Association

<http://www.cutaactu.ca/>

The Canadian Urban Transit Association (CUTA) is the “collective voice of public transit in Canada.” The website has links to a variety of websites and publications.

## **NPDc9 Access to Civic and Passive Use Spaces**

### ***Form Guidance***

Complete the form in its entirety. If the project contains any neighbourhood greenways as defined in the LEED 2009 for Neighborhood Development Rating System with ACPs for Canadian Projects, use the “Special Circumstances” box to explain how these areas meet the definition of this term. If any neighbourhood greenways are less than 1 acre in size and do not meet the proportional requirements of the credit, you may still check the following required box in the form because neighborhood greenways are exempt: “The project team confirms that all civic or passive-use spaces of less than 1 acre have a proportion no narrower than 1 unit of width to 4 units of length.”

### ***Additional Resources***

Canadian Parks and Recreation Association

<http://www.cpra.ca/EN/main.php?action=cms.orgProfile>

The CPRA works with 13 provincial and territorial parks and recreation associations and collaborates with other national organizations operating in the recreation, physical activity, environmental, facilities, sports, public health, crime prevention and social services arenas. The CPRA website provides links to national programs, research reports, workbooks, toolkits, and other resources.

### ***Additional Definitions***

**neighbourhood greenways** are at least 8 metres (26 feet) in width and one block in length, are publicly accessible, have vegetation and/or water features, and are part of a neighbourhood-wide integrated pedestrian and/or bikeway network. Non-vegetated components are generally limited to lighting, public seating, walkways and bikeways.

## **NPDc10 Access to Recreation Facilities**

### ***Additional Resources***

Canadian Fitness and Lifestyle Research Institute

<http://www.cflri.ca/eng/index.php>

The CFLRI is a national research agency concerned with educating Canadians about the importance of leading healthy, active lifestyles. The CFLRI website provides research reports, recent news, links to national programs, and other resources.

## **NPDc11 Visitability and Universal Design**

### ***Form Guidance***

All projects using the ACP must provide a narrative describing how the project meets section 6.1-6.6 of CSA B651-04 (R2010) - Accessible Design for the Built Environment in the Special Circumstances box.

For Stage 1 & 2 projects pursuing Option 2, select this option in the form and check the boxes for Uploads NPDc11-2 and NPDc11-3. Provide a map with site base, project boundary, and noncompliant rights-of-way and travel routes (exterior and interior) delineated and a commitment letter on developer or owner letterhead to meet the requirements of the ACP.

For Stage 3 projects pursuing Option 2, select this option in the form and check the box for Upload NPDc11-2. Provide the percentage of compliant rights of way in the input field and upload a map with site base, project boundary, and noncompliant rights-of-way and travel routes (exterior and interior) delineated.

### ***Canadian Referenced Standards***

Canadian Standards Association: B651-04 (R2010) – Accessible Design for the Built Environment

<http://www.shopcsa.ca/onlinestore/GetCatalogItemDetails.asp?mat=2015478>

This Standard contains requirements for making buildings and other facilities accessible to persons with a range of physical, sensory, and cognitive disabilities. It covers many different types of building and environmental facilities.

### ***Additional Resources***

Canadian Centre on Disability Studies

[http://www.visitablehousingcanada.com/can\\_init.html](http://www.visitablehousingcanada.com/can_init.html)

This website provides recent news and information on visitability initiatives across Canada and internationally, and provides example policies, guidelines and projects.

## **NPDc12 Community Outreach and Involvement**

### ***Additional Resources***

Smart Growth Canada Network

[http://www.smartgrowth.ca/home\\_e.html](http://www.smartgrowth.ca/home_e.html)

The Smart Growth Canada Network (SGCN) is a national organization founded in May 2003 to help advance the implementation of smart growth and sustainability principles across the country through education, research and capacity building strategies for the broad range of decision makers. The website outlines smart growth principles and provides links to courses, reports, and partner organizations.

## **NPDc13 Local Food Production**

### ***Additional Resources***

Equiterre

[www.equiterre.org](http://www.equiterre.org)

Equiterre is a Québec nonprofit organization involved with a variety of projects related to sustainability and food security, including support for an extensive CSA network.

Just Food

[www.justfood.ca](http://www.justfood.ca)

Just Food promotes food security in Ottawa, and their website contains numerous links and resources, including information about local CSAs.

Farmers' Markets Ontario

[www.farmersmarketsontario.com](http://www.farmersmarketsontario.com)

This website contains information about farmers' markets throughout Ontario, including a database searchable based on location and market days.

Farm Folk/City Folk

[farmfolkcityfolk.ca](http://farmfolkcityfolk.ca)

FarmFolk/CityFolk support community-based sustainable food systems. This website contains many resources, including information about local events, farmers markets, and CSAs in Metro Vancouver, the Fraser Valley, and throughout BC.

Toronto Community Garden Network

[www.tcgn.ca](http://www.tcgn.ca)

This website contains numerous resources related to community gardens in Toronto, including a map of the city's community garden sites.

*Agricultural Urbanism*, by Janine de la Salle and Mark Holland (Green Frigate Press, 2010).

### 4.3 Green Infrastructure and Buildings

#### GIBp2 Minimum Building Energy Efficiency and GIBc2 Building Energy Efficiency

##### **Form Guidance**

NON-RESIDENTIAL BUILDINGS, MIXED-USE BUILDINGS, AND MULTIUNIT RESIDENTIAL BUILDINGS 4 STORIES OR MORE

Stage 1/ Stage 2 if buildings are not substantially designed:

- In the commitment letter, specify which compliance path (ASHRAE or MNECB) will be used to comply with the prerequisite.

Stage 2 if buildings are substantially designed/Stage 3:

1. ASHRAE path: Complete the form as-is.
2. MNECB path:
  - Complete the form, assuming the units of the table summarizing energy performance to be meters squared, kWh/m<sup>2</sup>, and MJ instead of their Imperial counterparts.
  - Be sure to complete the required signatory section.
  - For Upload GIBp2-9, choose the last radio button and upload based on one of the following methods:
    - a. Compliance report from 3<sup>rd</sup> party agency such as Natural Resources Canada (NRCAN):  
For Commercial Building Incentive Program (CBIP) projects reviewed and approved by NRCAN. Provide a copy of the NRCAN assessment report, indicating annual energy savings. Note that the CBIP program has now ended and NRCAN is no longer accepting new projects.
    - b. Compliance report from 3<sup>rd</sup> party individual on *CaGBC's Experienced Modellers List*:  
For CBIP projects not reviewed by NRCAN and all other projects. Provide a review report by an individual on the *CaGBC's Experienced Modellers List*.

The project's computer energy simulation must adhere to the *LEED Canada Energy Modelling Rules*. Retain the final modeling report indicating the annual energy cost of the baseline and design cases and the assumptions used in the model, as well as the simulation output files.

(Form Guidance continued next page...)

RESIDENTIAL BUILDINGS 3 STORIES OR FEWER

Stage 1/ Stage 2 if buildings are not substantially designed:

- Choose Option 3, equivalent path, and complete the form as-is.

Stage 2 if buildings are substantially designed/Stage 3:

- Complete the table summarizing energy performance; choose “equivalent” for the compliance path.
- For upload GIBp2-8, provide the appropriate input/output summaries for the program chosen:
  - a. ERS:
    - For buildings that are not yet built, provide the HOT 2000 design output file (the plan file or “P file”) and a PDF print-out of the complete HOT 2000 report.
    - For buildings that are built, provide the HOT 2000 final output file (the final house file or “N file”) as submitted to NRCan, and a PDF print-out of the complete HOT 2000 report, or a copy of the EnerGuide label from NRCan.
  - b. Ontario Energy Star/Novoclimat/LEED Canada for Homes:
    - For buildings that are not yet built, upload a signed and dated commitment on owner or developer letterhead that describes the design strategies that will be used to achieve the Ontario Energy Star, Novoclimat, or LEED Canada for Homes certification.
    - For buildings that are built, provide confirmation of certification.
- Note which program is being used for compliance in the Special Circumstances section.

**Implementation**

To use the MNECB path, the project team must show compliance via a 3<sup>rd</sup> party assessor. Approved 3<sup>rd</sup> party assessors include NRCan and individuals on the *CaGBC’s Experienced Modellers List*. The *CaGBC’s Experienced Modellers List* is updated periodically. Please refer to the CaGBC website, at [www.cagbc.org](http://www.cagbc.org), for the most recent version of the *CaGBC’s Experienced Modellers List*.

For the MNECB path, the LEED Canada Energy Modelling Rules include:

- Model National Energy Code for Buildings (MNECB), 1997



- Performance Compliance for Buildings, Specifications for Calculation Procedures for Demonstrating Compliance to the Model National Energy Code for Buildings Using Whole Building Performance, May 1999
- ecoEnergy EE4 Software Modelling Guide
- LEED Canada 2009 Supplementary Energy Modelling Guidelines
- LEED Canada 2009 Interpretation Guide for District Energy Systems

As part of the design process, an energy modelling expert must use approved energy simulation software, such as, DOE-2, DOE EnergyPlus, EE4, eQUEST or other CaGBC-approved software to determine building energy performance.

More information can be found on the CaGBC website, at [www.cagbc.org](http://www.cagbc.org), under guidance for LEED Canada NC 2009 projects, and in the *LEED Canada Reference Guide for Green Building Design and Construction 2009*.

For the ERS path, Hot2000 in EnerGuide New Homes mode is only available to trained Certified Energy Advisors (CEAs). Projects that plan to use the performance pathway must be modelled by individuals who have access to the EnerGuide software and have been trained in its use. A LEED for Homes Provider can assist with finding a qualified ERS-trained energy modeller. A List of Providers can be found at [www.cagbc.org/leed/homes](http://www.cagbc.org/leed/homes)

### ***Canadian Referenced Standards***

Model National Energy Code for Buildings (MNECB) 1997:

Canadian Commission on Building and Fire Codes, National Research Council of Canada.

The Model National Energy Code for Buildings (MNECB) is a model energy efficiency code published in September 1997 by the National Research Council Canada (NRCC). MNECB was developed by the National Research Council of Canada, the organization that is responsible for the National Building Code of Canada, as a model code for adaptation or adoption by Canadian provinces and municipalities. The MNECB was developed with input from many committees and all provinces and was published in 1997, but there has been little adoption by authorities.

The code sets minimum energy efficiency standards for commercial building construction in Canada. The MNECB contains mandatory requirements for architectural, mechanical, and electrical design items. To evaluate energy efficiency, the proposed design is compared to a similar building that just meets the requirements of the MNECB. The energy savings can be achieved through improvements to the interior lighting systems, building envelope, HVAC systems, central plant equipment (e.g. boilers, chillers), and domestic hot water systems.

Building Energy Codes Program - Natural Resources Canada

<http://canmetenergy.nrcan.gc.ca/buildings-communities/2218>

HOT2000™ is a low-rise residential energy analysis and design software. Up-to-date heat loss or gain, and system performance models provide an accurate way of evaluating building designs. This evaluation takes into account the thermal effectiveness of the building and its components, the passive solar heating owing to the location of the building, and the operation and performance of the building's ventilation, heating and cooling systems.

Canadian Residential Energy Services Network

[www.cresnet.ca](http://www.cresnet.ca)

CRESNET is a new, national non-profit association of energy service providers, advisors and inspectors, who are working to ensure energy efficiency in residential buildings in Canada. CRESNET owns the Canadian rights to the RESNET programs, including the HERS program, and is responsible for their oversight.

EnerGuide Rating System for New Homes - Natural Resources Canada

<http://www.oeenrcan.gc.ca/residential/business/builders-renovators-trades/building/rating.cfm?attr=12>

An EnerGuide rating is a standard measure of a home's energy performance. Ratings are calculated by professional EnerGuide rating service energy advisors from information collected during the analysis of building plans and the results of the blower door test performed once the house has been built. The home's energy efficiency level is rated on a scale of 0 to 100. A rating of 0 represents a home with major air leakage, no insulation and extremely high energy consumption. A rating of 100 represents a house that is airtight, well insulated, sufficiently ventilated and requires no purchased energy on an annual basis. The EnerGuide scale reflects insulation levels, air sealing, window size and specifications, distribution system, space heating and cooling equipment size, water heating, and renewable energy.

ENERGY STAR® for New Homes Initiative – Canada

Natural Resources Canada - Office of Energy Efficiency

<http://oeenrcan.gc.ca/>

ENERGY STAR is a Canadian government-managed initiative which has the rights in Canada to use the ENERGY STAR name and symbol, and to sub-license its usage. The following website provides information on the homes program for homebuyers and for builders:

<http://oeenrcan.gc.ca/residential/12924>.

Novoclimat® New Home Certification Program - Agence de l'efficacité énergétique

<http://www.aee.gouv.qc.ca/en/my-home/novoclimat/>

Novoclimat® is a new home certification program available in Québec. On a voluntary basis, contractors take training courses and receive technical support. The homes they build are inspected during the construction phase and certified by the Agence de l'efficacité énergétique (AEE) if they satisfy all applicable requirements. Insulation, air, vapour and water tightness, windows, and ventilation are all criteria for the certification. New single-family, semi-detached or row house (townhouse)—with the exception of homes built north of the 51st parallel or which main heating source is wood—are eligible for Novoclimat® certification, as long as the construction of the home has been done by a contractor accredited by the AEE and that it satisfies all Novoclimat® requirements.

### **GIBp3 Minimum Building Water Efficiency and GIBc3 Building Water Efficiency**

#### ***Form Guidance***

In the special circumstances section, please submit a spec sheet or provide a narrative describing strategies/fixtures used to meet the LEED Canada for Homes WEC3 if there are low-rise residential buildings in the project.

## GIBc4 Water-Efficient Landscaping

### ***Additional Resources***

Canadian Water and Wastewater Association

<http://www.cwwa.ca>

CWWA is a non-profit national body representing the common interests of Canada's public sector municipal water and wastewater services and their private sector suppliers and partners. Their committees and networks represent many areas of water management, including water efficiency. This site hosts many free research publications, including the Maximum Performance (MaP) Testing of Popular Toilet Models with independent test results for a variety of toilets' flush performance.

Canadian Water and Wastewater Association, Canada's Water Efficiency Experiences Database

[http://www.cwwa.ca/WEED/Search\\_e.asp](http://www.cwwa.ca/WEED/Search_e.asp)

The water efficiency database was developed by the Canada Water and Wastewater Association and Environment Canada to encourage the exchange of information. The user can select information from the following areas: indoor; outdoor; landscaping; public awareness and education; community activity; infrastructure; regulatory; research, technology and science; economics and geographic location (locations throughout Canada are represented).

City Farmer

<http://www.cityfarmer.org/>

Canada's Office of Urban Agriculture: Contains information on water efficient lawn care and other practices with links to related organizations.

Irrigation Industry Association of British Columbia

<http://www.irrigationbc.com/>

While primarily focused on irrigation in BC (including evapotranspiration rates for many municipalities), much of the information applies across Canada.

National Climate Data and Information Archive

[http://www.climat.meteo.ec.gc.ca/climateData/canada\\_e.html](http://www.climat.meteo.ec.gc.ca/climateData/canada_e.html)

This federal website is useful for researching local climate information such as data for rainwater harvesting calculations.

## GIBc5 Existing Building Reuse

### ***Form Guidance***

For projects with any historic buildings or cultural landscapes in a Provincial, Territorial, or National Register that have been demolished (buildings) or altered (landscapes), select "Yes" after "*Has any historic building, or portion thereof, been demolished or a cultural landscape been altered?*" and then select "*Building(s) or landscape(s) listed in a state register or the National Register of Historic Places have been altered or demolished.*" Upload an excerpt from a document from the appropriate authority (specified in the ACP) approving demolition or alteration of provincial/territorial or national register-listed buildings or landscapes.

## GIBc6 Historic Resource Preservation and Adaptive Use

### **Form Guidance**

For projects with any historic buildings or cultural landscapes in a Provincial, Territorial, or National Register that have been demolished (buildings) or altered (landscapes), select "Yes" after "*Has any historic building, or portion thereof, been demolished or a cultural landscape been altered?*" and then select "*Building(s) or landscape(s) listed in a state register or the National Register of Historic Places have been altered or demolished.*" Upload an excerpt from a document from the appropriate authority (specified in the ACP) approving demolition or alteration of provincial/territorial or national register-listed buildings or landscapes.

To appropriately document the rehabilitation of buildings, use the form accordingly:

- For path (a), select "Local certificate of appropriateness" and upload a document from the relevant authority per the ACP.
- For path (b), select "SHPO/NPS review of rehabilitation" and upload a document from the relevant authority per the ACP.
- For path (c), select "Listed/eligible building not subject to review" and upload a document from the locally appointed heritage conservation organization, as per the ACP.

### **Canadian Referenced Standards**

Canadian Register of Historic Places

<http://www.historicplaces.ca/en/pages/register-repertoire.aspx>

The Canadian Register is a searchable database containing information about recognized historic places of local, provincial, territorial and national significance. A "historic place" is a structure, building, group of buildings, district, landscape, archaeological site or other place in Canada that has been formally recognized for its heritage value by an appropriate authority within a jurisdiction.

The Standards and Guidelines for the Conservation of Historic Places in Canada

<http://www.historicplaces.ca/en/pages/standards-normes.aspx>

These Standards are the fundamental principles of conservation applicable to all types of heritage resources, including archaeological sites, landscapes, buildings or engineering works.

### **Additional Resources**

B.C. Heritage Branch, Ministry of Forests, Lands, and Natural Resource Operations - Library

<http://www.for.gov.bc.ca/heritage/library.htm>

This online documents and forms library contains numerous reference documents, fact sheets, handbooks, and manuals on heritage conservation.

Association for Preservation Technology International

<http://www.apti.org/>

The Association for Preservation Technology International (APT) is a cross-disciplinary, membership organization dedicated to promoting the best technology for conserving historic structures and their settings.

Canadian Association of Heritage Professionals

<http://www.caphc.ca/directory.asp>

CAHP was founded in 1987 to represent the interests of professional practitioners in many related fields of heritage conservation.

Federal Heritage Buildings Review Office

[http://www.pc.gc.ca/progs/beefp-fhbro/index\\_e.asp](http://www.pc.gc.ca/progs/beefp-fhbro/index_e.asp)

The primary objective of the Federal Heritage Buildings Review Office (FHBRO) is to assist federal government departments in the protection of their heritage buildings, in accordance with the Treasury Board Policy on Management of Real Property.

Heritage Canada

<http://www.heritagecanada.org/eng/main.html>

The Heritage Canada Foundation is a national, membership-based organization and registered charity established in 1973 by the Government of Canada. Its mandate is to: "...preserve and demonstrate and to encourage the preservation and demonstration of the nationally significant historic, architectural, natural and scenic heritage of Canada with a view to stimulating and promoting the interest of the people of Canada in that heritage."

ICOMOS CANADA

<http://canada.icomos.org/home-E.html>

ICOMOS Canada is the Canadian National Committee of the [International Council on Monuments and Sites](#). As such, it is the focus of international cultural resources exchange in Canada, sharing preservation information and expertise worldwide.

Parks Canada

<http://www.pc.gc.ca/eng/index.aspx>

On behalf of the people of Canada, Parks Canada protects and presents nationally significant examples of Canada's natural and cultural heritage, and fosters public understanding, appreciation and enjoyment in ways that ensure their ecological and commemorative integrity for present and future generations.

U.S. National Park Service, Technical Preservation Service

<http://www.nps.gov/history/hps/>

The National Park Service offers many resources to help identify, evaluate, protect, and preserve historic resources throughout the United States. It offers many specific resources through its website beyond the standards for rehabilitation, described above, including information on conserving energy in historic buildings. Particularly useful publications available on-line include the *Illustrated Guidelines for Rehabilitating Historic Buildings*, *Preservation Briefs*, and *Preservation Tech Notes*.

*Adaptive Reuse: Preserving Our Past, Building Our Future* (Australian Department of the Environment, 2004), available at

<http://www.environment.gov.au/heritage/publications/protecting/adaptive.html>.

*A Guide to Working with the Federal Heritage Buildings Review Office* (Parks Canada, 2009), available at [http://www.historicplaces.ca/media/7313/fhbro\\_manual\\_parks%20canada.pdf](http://www.historicplaces.ca/media/7313/fhbro_manual_parks%20canada.pdf).

*A Life Cycle Assessment Study of Embodied Effects for Existing Historic Buildings* (Athena Institute/Parks Canada, 2009), available at [www.athenasmi.org/publications/docs/Athena\\_LCA\\_for\\_Existing\\_Historic\\_Buildings.pdf](http://www.athenasmi.org/publications/docs/Athena_LCA_for_Existing_Historic_Buildings.pdf)

*Conserving Buildings: Guide to Techniques and Materials*, by Martin E. Weaver and F.G. Matero (New York: Preservation Press, 1997).

*Green Guide to Heritage Conservation* (Manitoba Culture, Heritage and Tourism, Historic Resources Branch, 2010), available at: [http://www.gov.mb.ca/chc/hrb/pdf/green\\_guide\\_2010.pdf](http://www.gov.mb.ca/chc/hrb/pdf/green_guide_2010.pdf)

*Historic Preservation: Curatorial Management of the Built World*, by James Marston Fitch (University Press of Virginia, 1990).

*Improving Thermal Performance of Historic Windows*, by Craig Sims and Andrew Powter (Heritage, 2007), available at [http://www.heritagecanada.org/sites/heritagecanada.org/files/magazines/2007/spring/Spring2007\\_Thermal.pdf](http://www.heritagecanada.org/sites/heritagecanada.org/files/magazines/2007/spring/Spring2007_Thermal.pdf)

*Life Cycle Assessment in Heritage Buildings* (British Columbia Heritage Branch, Ministry of Ministry of Forests, Lands, and Natural Resource, 2010), available at: [www.tca.gov.bc.ca/heritage/sustainability/LCAReport.htm](http://www.tca.gov.bc.ca/heritage/sustainability/LCAReport.htm)

*Make it Work: A Sustainability Workbook for Historic Places* (Manitoba Culture, Heritage and Tourism, Historic Resources Branch, 2010), available at [http://www.gov.mb.ca/chc/hrb/pdf/sustainability\\_workbook\\_2010.pdf](http://www.gov.mb.ca/chc/hrb/pdf/sustainability_workbook_2010.pdf)

*New Life Old Buildings; Your Green Guide to Heritage Conservation* (Vancouver Heritage Foundation, 2009), available at [www.vancouverheritagefoundation.org/sustainability.html](http://www.vancouverheritagefoundation.org/sustainability.html).

*Well-Preserved: the Ontario Heritage Foundation's Manual of Principles and Practice for Architectural Conservation*, by Mark Fram (Erin, Ont.: The Boston Mills Press for the Ontario Heritage Foundation, 1988).

*Renovating vs. Building New: The Environmental Merits*, by Wayne Trusty (Athena Institute, 2004), available at: [www.athenasmi.ca/publications/docs/OECD\\_paper.pdf](http://www.athenasmi.ca/publications/docs/OECD_paper.pdf)

*The Architecture of Additions, Design and Regulation*, by Paul Spencer Byard (Norton, 1998).

### **Additional Definitions**

**cultural landscape** any geographical area that has been modified, influenced, or given special cultural meaning by people. *Designed cultural landscapes* were intentionally created by human beings; *Organically evolved cultural landscapes* developed in response to social, economic, administrative or religious forces interacting with the natural environment; and *Associative cultural landscapes* are distinguished by the power of their spiritual, artistic or cultural associations, rather than their surviving material evidence (Parks Canada/UNESCO).

**historic building** a building or structure listed or determined to be eligible as a historic building or structure or as a contributing building or structure in a designated historic district, due to its historic, architectural, engineering, archeological, or cultural significance. The building or structure must be designated as historic by a local heritage review board or similar body, be

listed locally, or in a Provincial, Territorial, or National Register, or have been determined eligible for listing in the National Register.

### **GIBc7 Minimized Site Disturbance in Design and Construction**

#### ***Additional Resources***

Evergreen Foundation

<http://www.evergreen.ca/en>

A registered national charity founded in 1991 working to create healthy cities through innovative community naturalisation projects across Canada - on school grounds, on public lands, and on the home landscape.

Native Plant Crossroads

[http://nature.ca/plnt/res/res\\_org\\_e.cfm](http://nature.ca/plnt/res/res_org_e.cfm)

From the Canadian Museum of Nature, this site lists native plant resources and organizations by province.

Society for Ecological Restoration International

<http://www.ser.org>

The mission of this non-profit consortium of scientists, planners, administrators, ecological consultants, landscape architects, engineers, and others is to promote ecological restoration as a means of sustaining the diversity of life and to re-establish an ecologically healthy relationship between nature and culture.

### **GIBc8 Stormwater Management**

#### ***Form Guidance***

For projects calculating rainfall volume to manage using the National Climate Data and Information Archive (NCDIA), complete the form in its entirety, leaving "Rainfall data sourced was obtained from" blank in the form. Submit all relevant and required uploads for this credit.

#### ***Additional Resources***

Metro Vancouver: Stormwater Best Management Practices Guide

<http://www.metrovancouver.org/services/wastewater/sources/Pages/StormwaterManagement.aspx>

Provides municipalities with a toolbox consisting of a series of stormwater best management practice (BMP) options.

Ministry of Environment (Ontario) – Stormwater planning

<http://www.ene.gov.on.ca/envision/gp/4329eindex.htm>

This website features a thorough Stormwater Management Planning and Design Manual.

National Climate Data and Information Archive

[http://www.climate.weatheroffice.gc.ca/Welcome\\_e.html](http://www.climate.weatheroffice.gc.ca/Welcome_e.html)

The National Climate Data and Information Archive provides precipitation data for locations across Canada.

Stormwater Planning: A Guidebook for British Columbia

<http://www.env.gov.bc.ca/epd/mun-waste/waste-liquid/stormwater/>

Provides framework for effective stormwater management in BC.

## **GIBc9 Heat Island Reduction**

### ***Additional Resources***

City of Toronto – Green Roof Site

<http://www.toronto.ca/greenroofs/index.htm>

In mid-2009, the city of Toronto adopted a bylaw to require and govern the construction of green roofs on new development. This site provides general resources and local studies on green roofs.

Cool Roof Rating Council

<http://www.coolroofs.org>

This non-profit organization is dedicated to implementing and communicating fair, accurate, and credible radiative energy performance rating systems for roof surfaces; supporting research into energy-related radiative properties of roofing surfaces, including durability; and providing education and objective support to parties interested in understanding and comparing roofing options.

Green Roofs for Healthy Cities

<http://www.greenroofs.org>

This non-profit industry association consists of individuals and public and private organizations committed to developing a market for green roof infrastructure products and services across North America.

## **GIBc11 On-Site Renewable Energy Sources**

### ***Additional Resources***

Canadian Solar Industries Association (CanSIA)

<http://www.cansia.ca>

CanSIA is the primary Canadian solar energy industry association, fostering research, information exchange and lobbying on behalf of manufacturers and distributors.

Canadian Wind Energy Association (CANWEA)

[www.canwea.ca](http://www.canwea.ca)

The Canadian Wind Energy Association (CanWEA) is a non-profit trade association that promotes the appropriate development and application of all aspects of wind energy in Canada, including the creation of a suitable policy environment.



LEED Canada Interpretation Guide for District Energy Systems

[http://www.cagbc.org/AM/Template.cfm?Section=LEED\\_Canada\\_NC\\_1\\_0](http://www.cagbc.org/AM/Template.cfm?Section=LEED_Canada_NC_1_0)

Provides guidance on district energy systems for LEED Canada projects.

Natural Resources Canada's ecoENERGY for Renewable Heat

<http://ecoaction.gc.ca/ecoenergy-ecoenergie/heat-chauffage/index-eng.cfm>

The federal government's ecoENERGY for Renewable Heat program offers incentives up to \$80,000 per installation to help the industrial/commercial/institutional sector cover the cost of installing active energy-efficient solar air and/or water heating systems.

Natural Resources Canada's ecoENERGY for Renewable Power

<http://ecoaction.gc.ca/ecoenergy-ecoenergie/power-electricite/index-eng.cfm>

The federal government's ecoENERGY for Renewable Power program offers an incentive of one cent per kilowatt-hour for up to 10 years for low-impact, renewable electricity projects.

Projects must have a total rated capacity of 1 MW or greater in order to qualify.

Natural Resources Canada's Renewable Energy Deployment Initiative

<http://www.nrcan.gc.ca/eneene/renren/index-eng.php>

Find current research and investment initiatives supporting Canada's commitment to increase its supply of clean, renewable energy.

Pollution Probe Consumer Guide to Green Power in Canada

[http://www.pollutionprobe.org/whatwedo/greenpower/consumerguide/c2\\_1.htm](http://www.pollutionprobe.org/whatwedo/greenpower/consumerguide/c2_1.htm)

This website provides some information on the availability of green power in each province of Canada.

RETScreen International

<http://www.etscreen.net/>

The RETScreen Clean Energy Project Analysis Software is a unique decision support tool developed with the contribution of numerous experts from government, industry, and academia. The software, provided free-of-charge, can be used worldwide to evaluate the energy production and savings, costs, emission reductions, financial viability and risk for various types of Renewable-energy and Energy-efficient Technologies (RETs). The software (available in multiple languages) also includes product, project, hydrology and climate databases, a detailed user manual, and a case study based college/university-level training course, including an engineering e-textbook.

## **GIBc12 District Heating and Cooling**

### ***Additional Resources***

Canadian District Energy Association

<http://www.cdea.ca/>

CDEA is an industry association representing member utilities, government agencies, building owners, consulting engineers, suppliers, developers, bankers, and investors who share a common interest in promoting the growth of district energy in Canada.

## **GIBc13 Infrastructure Energy Efficiency**

### ***Additional Resources***

Canadian National Committee of the Commission Internationale de l'Éclairage

<http://www.cie-cnc.ca/en/index.html>

The CNC/CIE is the collective Canadian voice of people interested in the science and art of light and lighting. The CNC/CIE represents Canada to the world. The Commission Internationale de l'Éclairage is a worldwide technical, scientific and cultural, non-profit autonomous organization with its Central Bureau located in Vienna, Austria.

Energy Council of Canada

<http://www.energy.ca/users/folder.asp>

The Energy Council of Canada is the Canadian national member of the World Energy Council, and is made up of representatives from all facets of Canada's energy sector. The Energy Council of Canada is a vehicle for strategic thinking, networking and action by senior executives in the private and public sectors who have a broad interest in national, continental and global energy issues. The Energy Council seeks to forge a better understanding of energy issues, in order to optimally shape the energy sector for the benefit of all Canadians.

## **GIBc14 Wastewater Management**

### ***Additional Resources***

Canadian Water and Wastewater Association

<http://www.cwwa.ca>

CWWA is a non-profit national body representing the common interests of Canada's public sector municipal water and wastewater services and their private sector suppliers and partners. Their committees and networks represent many areas of water management, including water efficiency. This site hosts many free research publications, including the Maximum Performance (MaP) Testing of Popular Toilet Models with independent test results for a variety of toilets' flush performance.

Canadian Water and Wastewater Association, Canada's Water Efficiency Experiences Database

[http://www.cwwa.ca/WEED/Search\\_e.asp](http://www.cwwa.ca/WEED/Search_e.asp)

The water efficiency database was developed by the Canada Water and Wastewater Association and Environment Canada to encourage the exchange of information. The user can select information from the following areas: indoor; outdoor; landscaping; public awareness and education; community activity; infrastructure; regulatory; research, technology and science; economics and geographic location (locations throughout Canada are represented).

National Climate Data and Information Archive

[http://www.climat.meteo.ec.gc.ca/climateData/canada\\_e.html](http://www.climat.meteo.ec.gc.ca/climateData/canada_e.html)

This federal website is useful for researching local climate information such as data for rainwater harvesting calculations.

Provincial/Territorial Water Policy, Legislation and Regulations

[http://www.ec.gc.ca/water/en/policy/prov/e\\_prov.htm](http://www.ec.gc.ca/water/en/policy/prov/e_prov.htm)

This Environment Canada website provides links to water use associations, legislation, regulation and tools for all provinces and territories in Canada.

## **GIBC15 Recycled Content in Infrastructure**

### ***Additional Resources***

Construction Specifications Institute (CSI), Green Format

<http://www.greenformat.com>

This database features a standardized format for manufacturers to report recycled content as well as other environmental and sustainable attributes. The website is based on principles of ISO 14021, –Environmental Labels and Declarations—Self-Declared Environmental Claims (Type II Environmental Labelling), and ASTM E 2129, Standard Practice for Data Collection for Sustainability Assessment of Building Products.

Environmental Choice Certified Products

<http://www.ecologo.org/en>

The EcoLogo program certifies environmentally preferable, green goods and services with the Environmental Choice label. The program compares products and services with others in the same category, develops rigorous and scientifically relevant criteria, and awards the EcoLogo to those that are environmentally preferable throughout their lifecycles. The EcoBuyer Green Products and Service Database lists certified product categories, including all numbered product categories listed in this credit, as well as links to a list of all 7,500 EcoLogo-certified products.

Oikos

<http://www.oikos.com>

Oikos is a searchable directory of efficient building products and sustainable design resources.

## **GIBC16 Solid Waste Management Infrastructure**

### ***Additional Resources***

BuildSmart - Sustainable Buildings Solutions

<http://www.metrovancouver.org/BuildSmart/Pages/default.aspx>

BuildSmart is a program to encourage the use of green building strategies and technologies.

Although designed and administered by Metro Vancouver, many resources are applicable across Canada.

Environment Canada – Extended Producer Responsibility & Stewardship

<http://www.ec.gc.ca/epr/default.asp?lang=En&n=0516BB31-0>

This website provides an inventory of waste diversion programs in Canada funded in whole or in part by industry and consumers.

## **GIBC17 Light Pollution Reduction**

### ***Additional Resources***

Royal Astronomical Society of Canada, Light Pollution Abatement Program

<http://www.rasc.ca/light/>

This program's goal is to reduce levels of light pollution in urban and rural areas by advising governments, businesses and citizens on taking action to reduce unnecessary glare, uplight and light trespass.