

The following document is the Introduction section of the *LEED Canada for Existing Buildings: Operations and Maintenance 2009 Reference Guide*. This excerpt has been made publically available to assist in the selection of an appropriate LEED rating system. The complete Reference Guide including strategies, calculations and additional resources to assist in meeting the requirements of each credit and prerequisite may be purchased from the CaGBC website, www.cagbc.org.

INTRODUCTION

I. WHY MAKE YOUR BUILDING GREEN?

GREEN BUILDING OPERATIONS AND MAINTENANCE

Green building operations and maintenance strives to balance environmental responsibility, resource efficiency, occupant comfort and well-being, community development and the economics of building operation. It includes all stakeholders in an integrated development process, including the building owner, facility manager, property manager, facility additions and alterations construction teams, operations and maintenance staff, and building occupants. This process results in a high-quality product that maximizes the owner's return on investment.

BENEFITS OF GREEN BUILDING

Green buildings are superior to their conventional counterparts; typically including features such as:

- Landscaping that requires little or no irrigation or application of synthetic chemicals, manages and treats stormwater and non-point-source pollution onsite, and replenishes groundwater supplies.
- Locations that support efficient travel options for building users.
- Durable, thermally efficient roofs, walls and windows that reduce heating and cooling and enhance thermal comfort.
- Building form, orientation and thermal mass optimized for solar gains, natural ventilation and daylighting for free heating, cooling, ventilation and lighting.
- Significantly smaller and more efficient HVAC and electrical lighting systems.
- Water efficient supply and waste fixtures.
- Adaptable interior designs, providing visual access to the outdoors and access to daylight.
- Interior finishes and installation methods having lower toxic emissions.

Throughout their lifecycle, green buildings use less energy and water, generate less greenhouse gases and other pollutants, use materials wisely, and produce less waste. They cost less to operate, are more adaptable to new uses and typically have longer economic lives. Occupants are more comfortable in green buildings with their excellent ventilation, thermal comfort, and abundant natural light. Green buildings are healthier for occupants and workers who process building materials, by minimizing use of materials made with harmful chemicals and indoor air pollutants, and reducing the risks of biological contamination. The satisfaction and lives of occupants are greatly enhanced by providing restorative views, plentiful outdoor air, and greater personal control of internal conditions. Providing healthy indoor environments reduce sick building syndrome as well as the risks of litigation. A growing body of research links the high quality indoor environments of green buildings to gains in productivity, decreased absenteeism and improved employee morale. Green design has environmental, economic, and social benefits for all stakeholders, including owners, occupants and the general public. Green buildings are essential to support sustainable patterns of living.

II. LEED GREEN BUILDING RATING SYSTEM

HISTORY

Growing awareness and concern with the environmental and health impacts of buildings in Canada has led to widespread demand for a common method of independently certifying the merits of a given building. In response to this demand, the Canada Green Building Council has adapted several rigorous Canadian green rating systems based on the U.S. Green Building Council's LEED® system. The aim has been to create rating tools that both recognize high health, energy and environmental performance, while being practical and easy to apply by Canadian building projects.

The first LEED rating system adapted for Canada-wide use was the LEED® Canada for New Construction and Major Renovations version 1.0 (LEED Canada-NC, launched in December 2004). This system was adapted from the USGBC's LEED-NC version 2.1, tailored specifically for Canadian climates, construction practices and regulations. In 2004, the USGBC released a LEED rating system catering to Existing Buildings – LEED-EB. Since the release of LEED-EB, the USGBC has released LEED for Existing Buildings: Operations and Maintenance (April 2008), and most recently, LEED 2009 for Existing Buildings: Operations & Maintenance (April 2009). *LEED Canada for Existing Buildings: Operations and Maintenance* is an adaptation of this latest system.

The green design field is growing and changing daily. New technologies and products are coming into the marketplace, and innovative designs are proving their effectiveness. The rating systems and the reference guides are evolving as well. Teams wishing to certify their projects with LEED should use the version of the rating system that is current at the time of their registration. CaGBC will highlight new developments on its website on a continual basis; see www.cagbc.org.

FEATURES OF LEED

The LEED Green Building Rating Systems are voluntary, consensus-based, and market-driven. Based on existing and proven technology, they evaluate environmental performance from a whole building perspective over a building's life cycle, providing a definitive standard for what constitutes a green building in design, construction, and operation.

The LEED rating systems are designed for rating new and existing commercial, institutional, and residential buildings. They are based on accepted energy and environmental principles and strike a balance between known, established practices and emerging concepts. Each rating system is organized into 5 environmental categories: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, and Indoor Environmental Quality. An additional category, Innovation in Design (or Operations), addresses sustainable building expertise as well as measures not covered under the 5 environmental categories. Regional bonus points are another feature of LEED and acknowledge the importance of local conditions in determining best environmental design and construction practices.

THE LEED CREDIT WEIGHTINGS

In LEED 2009, the allocation of points between credits is based on the potential environmental impacts and human benefits of each credit with respect to a set of impact categories. The impacts are defined as the environmental or human effect of the design, construction, operation, and maintenance of the building, such as greenhouse gas emissions, fossil fuel use, toxins and carcinogens, air and water pollutants, indoor environmental conditions. A combination of approaches, including energy modeling, life-cycle assessment, and transportation analysis, is used to quantify each type of impact. The resulting allocation of points among credits is called credit weighting.

LEED 2009 uses the U.S. Environmental Protection Agency's TRACI¹ environmental impact categories as the basis for weighting each credit. TRACI was developed to assist with impact evaluation for life-cycle assessment, industrial ecology, process design, and pollution prevention. LEED 2009 also takes into consideration the weightings developed by the National Institute of Standards and Technology (NIST); these compare impact categories with one another and assign a relative weight to each. Together, the 2 approaches provide a solid foundation for determining the point value of each credit in LEED 2009.

The LEED 2009 credit weightings process is based on the following parameters, which maintain consistency and usability across rating systems:

- All LEED credits are worth a minimum of 1 point.
- All LEED credits are positive, whole numbers; there are no fractions or negative values.
- All LEED credits receive a single, static weight in each rating system; there are no individualized scorecards based on project location.
- All LEED rating systems have 100 base points; Innovation in Design (or Operations) and Regional Priority credits provide opportunities for up to 10 bonus points.

Given the above criteria, the LEED 2009 credit weightings process involves 3 steps:

1. A reference building is used to estimate the environmental impacts in 13 categories associated with a typical building pursuing LEED certification.
2. The relative importance of building impacts in each category are set to reflect values based on the NIST weightings.²
3. Data that quantify building impacts on environmental and human health are used to assign points to individual credits.

Each credit is allocated points based on the relative importance of the building-related impacts that it addresses. The result is a weighted average that combines building impacts and the relative value of the impact categories. Credits that most directly address the most important impacts are given the greatest weight, subject to the system design parameters described above. Credit weights also reflect a decision by LEED to recognize the market implications of point allocation. The result is a significant change in allocation of points compared with previous LEED rating systems. Overall, the changes increase the relative emphasis on the reduction of energy consumption and greenhouse gas emissions associated with building systems, transportation, the embodied energy of water, the embodied energy of materials, and where applicable, solid waste.

The details of the weightings process vary slightly among individual rating systems. For example, *LEED Canada EB:O&M* includes credits related to solid waste management within the building but LEED Canada for New Construction does not. This results in a difference in the portion of the environmental footprint addressed by each rating system and the relative allocation of points. The weightings process for each rating system is fully documented in a weightings workbook. The credit weightings process will be reevaluated over time to incorporate changes in values ascribed to different building impacts and building types, based on both market reality and evolving scientific knowledge related to buildings. A complete explanation of the LEED credit weightings system is available on the USGBC website, at www.usgbc.org.

III. OVERVIEW AND PROCESS

The LEED Canada Green Building Rating System for Existing Buildings: Operations & Maintenance is a set of performance standards for certifying the operations and maintenance of existing commercial or institutional buildings and high-rise residential buildings of all sizes, both public and private. The intent is to promote high-performance, healthful, durable, affordable, and environmentally sound practices in existing buildings.

Prerequisites and credits in the LEED for Existing Buildings: O&M Rating System address seven topics:

- Sustainable Sites (SS)
- Water Efficiency (WE)
- Energy & Atmosphere (EA)
- Materials & Resources (MR)
- Indoor Environmental Quality (EQ)
- Innovation in Operations (IO)
- Regional Priority

LEED prerequisites and credits have identical structures (see Section IV of this Introduction).

WHEN TO USE LEED CANADA FOR EXISTING BUILDINGS: OPERATIONS & MAINTENANCE

LEED Canada EB:O&M was designed to certify the sustainability of ongoing operations of existing commercial and institutional buildings, i.e. buildings regulated by Subsection 2.1.2 (i.e. Parts 3, 4, 5 and 6) of Canada's National Building Code. All such buildings are eligible for certification under *LEED Canada EB:O&M*. They include but are not limited to offices, retail and service establishments, institutional buildings (libraries, schools, museums, churches, etc.), hotels, and residential buildings of four or more habitable stories.

LEED Canada EB:O&M provides owners and operators of existing buildings an entry point into the LEED certification process and is applicable to the following:

- building operations, processes, systems upgrades, minor space-use changes, and minor facility alterations or additions; and
- buildings new to LEED certification as well as buildings previously certified under LEED Canada for New Construction or LEED Canada for Core & Shell; these may be either ground-up new construction or existing buildings that underwent major renovations.

LEED Canada EB:O&M encourages owners and operators of existing buildings to implement sustainable operations and maintenance practices and to reduce the environmental impact of their buildings over their functional life-cycles. Specifically, the rating system addresses exterior building site maintenance programs, water and energy use, environmentally preferred products and practices for cleaning and alterations, sustainable purchasing policies, waste stream management, and ongoing indoor environmental quality. *LEED Canada EB:O&M* is targeted at single buildings, whether owner occupied, multi-tenanted, or multiple-building campus projects. It is a whole-building rating system applicable to the entire building; individual tenant spaces are ineligible.

Many projects neatly fit the defined scope of only one LEED rating system; others may be eligible for two or more. The project is a viable candidate for LEED certification if it can meet all prerequisites and achieve the minimum points required in a given rating system. If more than one rating system applies, the project team can decide which one to pursue. For further assistance in choosing the most appropriate LEED rating system, please e-mail info@cagbc.org.

LEED CANADA PROJECT REGISTRATION

Projects teams interested in earning LEED Canada for Existing Buildings: Operations & Maintenance certification for their buildings must first register the project with the CaGBC. Projects can be registered on the CaGBC website (www.cagbc.org). Registering early in the development process ensures the maximum potential for achieving high building performance, and establishes contact with the CaGBC.

Registration of a *LEED Canada EB:O&M* project provides online access to essential information, software tools and communications for LEED users, such as the *LEED Canada EB:O&M* Letter Templates and Scorecard spreadsheet, and allows the team to submit Credit Interpretation Requests (CIRs).

The CaGBC web site (www.cagbc.org) contains additional registration details, a fee calculator, and the online form used to register projects.

CERTIFICATION SUBMITTAL DOCUMENTATION

Once a project is registered, project teams begin to collect information, make system adjustments, and perform calculations to meet the requirements for the prerequisites and credits. Once submitted to the CaGBC, this documentation becomes the proof behind performance declarations made in the LEED certification application.

It is best to start and continue preparing LEED certification submittals from project onset, having reviewed the *LEED Canada EB:O&M Reference Guide* and Letter Templates spreadsheet for each prerequisite and credit, to understand the information required and the formats that will satisfy LEED Canada Prerequisite and Credit certification review.

It is helpful to have a LEED Accredited Professional designated as the project contact and team member responsible for coordinating the certification process. Most project team members have submittals to prepare, and having an experienced LEED Accredited Professional designated to assist and coordinate efforts by those preparing submittals has proven to make the process much easier and more efficient.

It is important that each person preparing LEED submittals has a thorough understanding of each prerequisite's or credit's unique performance and documentation requirements, and to forward only those submittals required to clearly demonstrate that credit requirements have been met. Including extra documentation not listed as a submittal requirement for a prerequisite or credit is discouraged, as this can slow the review process.

USES OF SUBMITTAL DOCUMENTATION & INTELLECTUAL PROPERTY PROTECTION

The CaGBC is mindful of the privacy of certification applicants, and conscious that documents are the intellectual property of their creators. As agreed in the project registration process, some submitted materials are used by the CaGBC to promote the project and its merits to the general public and may be used by the CaGBC in training or marketing activities, or in aggregated form to expand the growing knowledge base of green building techniques, costs and trends. Information likely to be shared includes:

- LEED registration information, such as project contact, project type, floor area, number of occupants, original date of construction completion, etc.;
- the overall project profile;
- colour photographs of the project; and
- the LEED Project Scorecard

All other documents and materials submitted to the CaGBC are kept in strict confidence, and will not be distributed beyond those directly involved in certification, interpretations or appeals procedures, such as CaGBC staff, Technical Advisory Groups, LEED Canada Management Committee members, and designated reviewers who have signed a confidentiality agreement. Any additional distribution of submitted materials would occur only after the CaGBC has requested and received prior written permission from owners of the relevant intellectual property.

LEED CANADA EB:O&M CERTIFICATION APPLICATION AND REVIEW PROCESS

To earn LEED certification, the applicant project must satisfy all the prerequisites and credits worth the minimum number of points to attain the desired project rating under *LEED Canada EB:O&M*. Projects will need to comply with the version that is current at the time of project registration.

Applications for certification (submittals) should follow the requirements noted on the CaGBC website and within the *LEED Canada EB:O&M* Rating System, Reference Guide and Letter Templates.

FEES

Information on certification fees can be found on the CaGBC website (www.cagbc.org). The CaGBC will acknowledge receipt of your application and proceed with application review when all project documentation and payments have been submitted. Project teams should be aware that there are separate fees for registration and certification.

APPEALS

Appeals may be filed after the final application review. Please see the CaGBC website for more information on appeals.

CREDIT INTERPRETATION REQUESTS AND RULINGS

In some cases, a LEED project team may encounter challenges in applying a *LEED Canada EB:O&M* prerequisite or credit to its particular project. These difficulties may arise from instances where the Reference Guide does not sufficiently address a specific issue or an interpretation conflict requires resolution. To address such issues, the CaGBC has established a standard process to provide interpretations to registered project teams called Credit Interpretation Requests (CIRs) to ensure that rulings are consistent and available to other projects. CIRs also help guide future revisions to the Rating System, Reference Guide and Letter Templates.

Each CIR must request guidance on a single Credit or Prerequisite (unless there is technical justification to do otherwise). CIRs should contain one concise question or a set of closely related questions. Once a response to a CIR is posted, it is applicable to all projects submitting for certification thereafter, regardless of the date of the project's registration.

CIR rulings are intended to provide assistance to project teams by clarifying Credit requirements and/or providing acceptable alternate compliance paths that meet the Credit's intent. Project teams may implement CIR rulings at their discretion.

The credit interpretation process is as follows:

1. Before submitting a CIR:
 - a. Review the intent of the credit or prerequisite in question and self-evaluate whether the project meets this intent.
 - b. Consult the LEED Reference Guide for more detailed explanation, instructions, calculations and guidance.
 - c. Review the CIR database on the CaGBC website to see if the same inquiry has been answered previously, or if there are relevant CIRs that can help you deduce the answer. Many questions can be resolved by reviewing existing CIRs. Note that CIRs for other rating systems and CIR rulings from the USGBC are not necessarily applicable.
2. If a CIR is needed, submit a new credit interpretation request using the online form. Guidance for submitting a CIR can be found on the CaGBC website (www.cagbc.org).

Credit Interpretation Rulings do not guarantee credit award; the project applicant must still demonstrate and document achievement during the LEED Certification Application Process.

Credit language or achievement thresholds cannot be changed through the CIR process.

The inquiry and ruling must be submitted with the LEED application in order to ensure effective credit review.

UPDATES AND ADDENDA

This is the first edition of the *LEED Canada EB:O&M* Reference Guide, dated August 2009. As *LEED Canada EB:O&M* continues to improve and evolve, updates and addenda will be made available. The CaGBC cannot be held liable for any criteria set forth herein that may not be applicable to later versions of *LEED Canada EB:O&M*. Updates and addenda will be accumulated between revisions and will be formally incorporated in major revisions. In the interim, between major revisions, the CaGBC may use its consensus process to clarify criteria.

The prerequisites, credits, and credit rulings current at the time of project registration will continue to guide the project throughout its certification process.

IV. STRUCTURE OF THE LEED CANADA EB:O&M RATING SYSTEM

LEED Canada EB:O&M includes the full range of prerequisites and credits included in the USGBC's LEED-EB: O&M 2009 version, and is adapted to address issues, standards, resources and practices specific to Canada. In some instances, significant changes, deemed to be more appropriate in the Canadian context, were made while maintaining the intentions and rigour of USGBC LEED-EB: O&M 2009. Table 4 highlights the magnitude of the differences between *LEED Canada EB:O&M* and the USGBC's LEED-EB: O&M 2009. The prerequisites and credits are organized in the five principal LEED categories:

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality

Two additional categories, Innovation in Operations and Regional Priority, provide credit for expertise in green operations and maintenance, measures not covered under the five principal environmental categories; and specific regional environmental considerations.

A *LEED Canada EB:O&M* Scorecard is provided at the end of this section in Table 5, which outlines the prerequisites and credits, and their weightings.

PREREQUISITES AND CREDITS

Prerequisites and credits are the core criteria of LEED rating systems, and define performance requirements that must be met to be eligible for certification:

- Prerequisites define the minimum performance requirements in a particular LEED category.
- Performing the requirements of a prerequisite does not contribute points to a project's score.
- All prerequisite requirements must be met for a project to be eligible to receive *LEED Canada EB:O&M* certification.
- Credits are the fundamental LEED criteria that describe practices deemed to reduce the project's environmental, health and resource impacts. Each credit has a defined number of possible points that may be awarded upon successful review of submittal documents demonstrating performance that followed the credits' requirements. Documented performance of the requirements in each credit is rewarded by a number of points that contribute to the overall rating for the project. Credits and available points in each credit and performance category are shown in Table 5.
- A credit can consist of several "sub-credits", each of which adds further requirements that, with documented performance submittals, may be rewarded with additional points.
- Application of any particular credit to the defined LEED project is at the discretion of the project's operations and maintenance team responding to the project's unique constraints and opportunities.
- Projects must meet all prerequisites and achieve 40 points from other credits before they may earn any points from Regional Priority credits.

Points are earned by implementing the requirements laid out in each credit, and documenting that implementation with that credit's defined submittals. The total number of points awarded across all credits and categories determines the overall rating of Certified, Silver, Gold, or Platinum. Table 1 outlines the point thresholds for each LEED Certification rating. Project ratings are certified by the CaGBC based on the total point score, following an independent review of the documentation submitted by an operations and maintenance team. With four possible levels of certification, LEED is flexible enough to accommodate a wide range of green building strategies that best fit the constraints and goals of particular projects.

TABLE 1 - POINT THRESHOLDS FOR LEED CERTIFICATION RATINGS

CERTIFICATION LEVEL	POINTS
Certified	40-49
Silver	50-59
Gold	60-79
Platinum	80+
Total Core Points	100
Total Innovation & Design Process Bonus Points	6
Total Regional Priority Bonus Points	4
Total Available Points	110

Credit descriptions and requirements identify one means by which a credit may be achieved. Nevertheless, the critical issue with the use of LEED is meeting the intent of the credit, and documenting equivalent or better performance to the requirements is an alternative means to achieve the credit.

While the *LEED Canada EB:O&M Rating System* is a 121 page document, available for download free of charge from the CaGBC website, the *LEED Canada EB:O&M Reference Guide* is a more extensive, detailed document that supplements the Rating System. The Rating System is a summary of the LEED intents and requirements, while the Reference Guide also provides guidance to teams on calculations and submittal requirements. The Reference Guide, described in next section, can be purchased online on the CaGBC website.

V. REFERENCE GUIDE

The Reference Guide is the user's manual for *LEED Canada EB:O&M Rating System* and is intended to assist project teams in understanding and applying its criteria. The Guide includes examples of strategies demonstrated to be effective and practical in meeting LEED prerequisite and credit intents and requirements, case studies of buildings that have implemented these strategies successfully, and links to other resources. The Guide does not pretend to provide an exhaustive list of all strategies that may meet a particular prerequisite's or credit's intent, nor does it provide all of the information that design teams may need to apply a particular strategy well in a particular project. Team members are encouraged to combine the burgeoning body of emerging green practices and knowledge now widely available with their own professional judgment and experience.

PREREQUISITE AND CREDIT FORMAT

Each prerequisite or credit is organized in a standardized format for simplicity and quick reference. The first section summarizes the main points regarding the green measure and includes the sections provide supporting information to help interpret the measure and offer links to various resources and examples. The sections for each credit are described in the following paragraphs.

Intent identifies the main sustainability goal or benefit of the prerequisite or credit. (This is also included in the Rating System.)

Requirements specify the criteria that satisfy the prerequisite or credit and the number of points available. The prerequisites **must** be achieved; the credits are optional, but each one contributes to the overall project score. Some credits have two or more paths with cumulative points. For example, Water Efficiency Credit 1, Water Performance Measurement, is divided into Credit 1.1 for metering 40% of the building's total expected annual water consumption (worth one point), and Credit 1.2 for achieving metering 80% (for an additional point). Other credits have several options from which the project team must choose. For example, Energy & Atmosphere Credit 1, Optimize Energy Efficiency Performance, has three options, but a project can apply for only one, depending on the type of building. (This is also included in the Rating System.)

Potential technologies & strategies describes possible methods for achieving each prerequisite or credit. (This is also included in the Rating System.)

The following sections are only available in the Reference Guide (i.e. not included in the Rating System):

Benefits & Issues to Consider describes considerations related to the prerequisite or credit. These may include environmental, economic, and regional issues. **Environmental issues** address the environmental impacts of the prerequisite or credit and attempt to relate specific goals or concerns with the influence on our natural environment. **Economic issues** address considerations related to first costs, life-cycle costs, and estimated savings.

Related credits are other prerequisites and credits that are impacted, either positively or negatively, by the measures needed to achieve the prerequisite or credit in question. This section helps the team determine the impact of implementing a given strategy, and achieve several credits through a single planning process.

Summary of referenced standards, where applicable, briefly introduces the required standards used to measure achievement of the credit intent. Teams are strongly encouraged to review the full standard and not rely on the summary.

Implementation describes specific methods or assemblies that facilitate achievement of the requirements.

Timeline and team gives guidance on project teams need to implement strategies in order to effectively meet credit requirements and to facilitate the certification process. This section also describes the roles certain team members play for that particular prerequisite or credit.

Calculations are sample formulas or computations that determine achievement of a particular prerequisite or credit. Some calculations are facilitated by the LEED Letter Templates, which are available to registered projects on the CaGBC website.

The **documentation guidance** section outlines what is required to document prerequisite and credit achievements.

The **examples** section, where applicable, provides the team with examples demonstrating how a project could meet requirements and/or document achievement. Where applicable, the examples section also includes **case studies** that highlight successful implementation of the goals of the prerequisite or credit.

Exemplary performance indicates whether the credit is eligible for an Innovation in Operations points for exemplary performance.

Regional variations are issues specific to the geographic location of the building.

Resources are suggested for further research and provide examples or illustrations, detailed technical information, or other information relevant to the prerequisite or credit. **Websites** list resources available on the Internet. **Print media** are books and articles related to the prerequisite or credit and may be obtained directly from the organizations listed.

VI. CERTIFICATION STRATEGY

Each project team can determine the most efficient approach to organizing the *LEED Canada EB:O&M* credits. As an alternative to using the *LEED Canada EB:O&M* credit categories, project teams and facility managers may find it helpful to regroup credits according to functional characteristics. This alternative organization may offer a more intuitive division of responsibilities among the team members. Below is a possible alternative regrouping of *LEED Canada EB:O&M* credits that may help facilitate the planning process.

Materials In credits are associated with planning and executing a sustainable purchasing policy (MR Prerequisite 1). This group of credits includes purchase of sustainable items, such as ongoing consumables, durable goods including furniture and electric-powered equipment, facility alterations and additions, light bulbs, and food.

Materials Out credits support the development of a solid waste management policy (MR Prerequisite 2). These credits involve conducting waste-stream audits and implementing methods of disposal for ongoing consumables, durable goods, and facility alterations and additions.

Administration credits assist in planning and logistics support in running a high-performance building. These credits involve conducting surveys to ensure occupants' comfort, providing alternative transportation for tenants, optimizing daylight and views, documenting sustainable building cost impacts, involving LEED Accredited Professionals, and exploring innovations in upgrades.

Green Cleaning credits support a low environmental impact cleaning policy (EQ Prerequisite 3). These credits involve purchase of sustainable cleaning products and equipment, and assessment of custodial effectiveness.

Site Management credits are a group of site-specific standards to ensure sustainable maintenance and operations by groundskeeping staff. These credits include management of building exterior and hardscape, pest management methods, water-efficient landscaping measures, light pollution reduction, effective stormwater management, non-roof heat reduction, and protection and restoration of open spaces.

Occupant Health and Productivity credits include improvements to indoor air quality and best practices. These include thermal comfort monitoring, increased ventilation, occupant-controlled lighting, and reduced particulates in air distribution.

Energy Metrics credits focus on measurement of the building's energy performance and ozone protection. These credits include methods of refrigerator management, emissions reduction reporting, and minimum energy performance.

Operational Effectiveness credits support best management practices (EA Prerequisite 1) for energy and water consumption. These include implementation of building commissioning, use of the building automation system, metering of energy usage and water consumption, cooling tower water management, indoor plumbing fixture efficiency, and non-potable water use.

VII. INITIAL CERTIFICATION VS. RECERTIFICATION

Any first-time certification application to the *LEED Canada EB:O&M* program is considered an initial *LEED Canada EB:O&M* certification. This includes applications for both buildings never certified under LEED and buildings previously certified under *LEED Canada for New Construction*, *LEED Canada for Core & Shell*, or any applicable USGBC LEED rating system. Any *LEED Canada EB:O&M* application for a building previously certified using *LEED Canada EB:O&M* is considered a *LEED Canada EB:O&M* recertification. These buildings can apply for recertification as frequently as each year but must file for recertification at least once every five years to maintain their *LEED Canada EB:O&M* status; if projects do not recertify at the five year mark, their next application will be considered an initial certification application. The project must recertify all prerequisites but may drop previously earned credits or add new credits as desired.

When registering for recertification, register as a separate project from the original existing building project but use the original project title and include the word “recertification” in the project name. All *LEED Canada EB:O&M* recertification projects are required to register under the *LEED Canada EB:O&M Rating System* version that is current at the time of the recertification registration. Please note that recertification project teams may opt to use a newer version of *LEED Canada EB:O&M* if one becomes available during the recertification application process (i.e., if a project registered for recertification before compliance with the new version of *LEED Canada EB:O&M* was required, it can upgrade to the new version rating system version). For more information on how to begin recertification, contact CaGBC Customer Service at info@cagbc.org.

The required performance period for credits earned in the initial certification is different from that for newly pursued credits. See additional explanation on the performance period in Section VIII. Recertification allows projects to maintain certified high-performance operations. When embarking on the *LEED Canada EB:O&M* certification process for the first time, teams are encouraged to plan ahead for recertification. Realizing that changes in mechanics and staff will occur is the first step to maintaining *LEED Canada EB:O&M* certification. For example, critical operating components will wear out and, if left in worn condition, can have adverse consequences on indoor environmental quality, building performance, and the environment. Similarly, as changes are made in staff, responsibility for policies, programs, and plans will shift.

The project team should therefore set goals to help maintain efficient and clean performance. Such goals may include continued data collection, ongoing commissioning, and documentation of operational changes, receipts from purchases, and new product specs. Setting and maintaining such goals will make the recertification process easier. If management requires periodic reports on the building's operational status, keep these documents as reference for future *LEED Canada EB:O&M* certification applications.

Because recertification is streamlined, projects already certified under *LEED Canada EB:O&M* will have minimal documentation burden. Any project that seeks to add or change credits to improve its LEED rating must submit the initial certification documents for those credits. In either scenario, a project seeking recertification must prove, using data appropriate to its goals, that it has maintained a level of LEED for Existing Buildings: Operations & Maintenance certification. For more information on recertification, please e-mail CaGBC Customer Service at info@cagbc.org.

The following typical best practices will make a project's recertification process easier:

- For LEED-related policies and procedures that were in place at the time of initial certification and did not change before recertification, record adherence to those policies and procedures through regular progress reports (at least annual) and other reporting methods. For example, record maintenance and repair activities throughout the building and site, and track occupants' purchasing and waste streams to verify performance goals.
- Update policies and procedures as changes occur on-site. Catalogue these changes and track implementation. For example, as energy inputs change, update building energy consumption in the ENERGY STAR Portfolio Manager Tool on a regular basis.
- Maintain the minimum level of tenant occupancy.
- Track lease rates and occupants' satisfaction with the building and site to identify areas for improvement.
- When vendor contracts are renewed or put out to bid, make sure that sustainability components are retained in the new contracts.
- Stay informed of LEED Canada for Existing Buildings updates, and adjust the building's sustainability measures accordingly.

VIII. PERFORMANCE PERIOD

LEED Canada EB:O&M certification application includes performance data for the building and site over the performance period — the continuous, unbroken time during which sustainable operations performance is being measured. The performance period may not have any gaps, defined as any period of time longer than one full-week.

REQUIREMENTS FOR INITIAL CERTIFICATION

Some prerequisites and credits in *LEED Canada EB:O&M* require that operating data and other documentation be submitted for the performance period. For the initial *LEED Canada EB:O&M* certification, the performance period is the most recent period of operations preceding certification application; it must be a minimum of three months for all prerequisites and credits, except for Energy & Atmosphere Prerequisite 2 and Credit 1, which have minimum 12 month performance period duration. At the project team's discretion, the performance period for any prerequisite or credit may be extended to a maximum of 24 months preceding certification application.

Most prerequisites and credits do not require information from before the start of the performance period. An exception to this is Innovation in Operations Credit 3, which requires building operating costs for the previous five years (or length of building occupancy, whichever is shorter), even though the credit performance period is a maximum of 24 months. Refer to IO Credit 3 for further detail on the submittal requirements.

Consistent start times and durations of the performance periods for each prerequisite and credit are preferred but not strictly necessary. However, all performance periods must overlap and terminate within one week of each other, as illustrated in Table 2. In this example, each performance period is at least three months, and the termination dates range from April 20 through April 26.

TABLE 2. PERFORMANCE PERIOD EXAMPLE

CREDIT	START	END*	DURATION**
WE 3. Water-Efficient Landscaping	February 22, 2008	April 20, 2009	14 Months
SS 6. Stormwater Management	April 6, 2008	April 22, 2009	12.5 months
SS 2. Building Exterior and Hardscape Management Plan	August 25, 2008	April 25, 2009	8 months
WE 1. Minimum Indoor Plumbing Fixture and Fitting Efficiency	January 12, 2009	April 26, 2009	3.5 Months

*All performance periods must end within the same seven-day interval.

** Minimum duration = 3 months; maximum duration = 24 months.

APPLICATION SUBMITTAL UPON COMPLETION OF THE PERFORMANCE PERIOD

To ensure that certification is awarded based on current building performance data, *LEED Canada EB:O&M* certification applications must be submitted to the CaGBC for review within 60 calendar days of the end of the performance periods. The 60 day period starts with the day following the last date of the performance period termination interval. In the example above, the termination interval ends on April 26, 2009. The certification application therefore must be submitted on or before May 28, 2009.

PERFORMANCE PERIOD BEST PRACTICES

The CaGBC encourages *LEED Canada EB:O&M* applicants to use a longer performance period, which will provide a more robust picture of the building's operations. For example, a full year of data will reflect seasonal variations in resource consumption, such as irrigation rates and heating and cooling loads, and occupant behavior, such as commuting choices. Ideally, the performance period should be identical across all prerequisites and credits, policy, operations, and equipment changes undertaken to meet *LEED Canada EB:O&M*.

Requirements should be fully implemented before the start of the performance period so that the data collected to document compliance reflect any changes. If major changes to building operating procedures or equipment are made during the performance period, collect at least three months of data afterward to help identify any new trends in the performance results.

PERFORMANCE PERIOD FOR RECERTIFICATION

The performance period for recertification depends on whether the credit is newly pursued. For prerequisites and all credits earned in the initial LEED Canada for Existing Buildings: Operations & Maintenance certification, the performance period is the entire period between the previous certification and the current application. For all credits not earned in the initial LEED Canada for Existing Buildings: Operations & Maintenance certification, the performance period is the same as for initial certification.

The performance period for recertification applications can be as short as 1 year and as long as 5 years.

Performance data for the entire performance period must be submitted with LEED Canada for Existing Buildings: Operations & Maintenance recertification applications. The required performance data must be provided for each year of the performance period so that ongoing annual performance is demonstrated. If data for a building do not reflect the entire performance period, submit an application for first-time LEED Canada for Existing Buildings: Operations & Maintenance certification.

IX. SUBMITTALS

The certification review process is initiated by submitting the required documentation. Refer to the CaGBC website for Submittal requirements and process. Additional project narratives are required as described below.

GENERAL SUBMITTALS: PROJECT NARRATIVE

LEED Canada for Existing Buildings: Operations & Maintenance requires the submission of an overall project narrative with the completed submittal templates. The project narrative, part of the general submittals template, describes the applicant's organization, building, site, and team. It helps the *LEED Canada EB:O&M* review team understand the major elements of the project and building performance, and it also aids the CaGBC in highlighting projects in future communications efforts. Project teams must address all the required elements listed below, providing details and clarifications where appropriate, and they may include any optional elements that are helpful in describing the project.

1. Project Summary and Scope
 - a. Briefly describe the factors motivating *LEED Canada EB:O&M* implementation and certification for this building.
 - b. Indicate whether the project is a single building or multiple buildings on a single site.
2. Building and Site
 - a. Note the project location and describe the building context, basic setting, and surrounding area.
 - b. Document the total site area and footprint of the vehicle parking area, if any.
 - c. If the project is part of a multi-building site or campus, briefly describe the surrounding buildings and setting.

3. Occupancy and Usage

- a. Document the percentage of total floor area currently occupied or being used.
- b. Provide the major space usage types in the building and the percentage of total floor area for each.
- c. If the building is not 100% owner occupied, provide the percentage of total floor area occupied by the owner and tenants respectively, and the total number of tenants.
- d. If applicable, identify the percentage of area under separate management and whether this area is included/excluded from the LEED project scope.

OPTIONAL PROJECT SUMMARY ELEMENTS

1. Applicant Organization

- Describe the mission and function of the ownership organization, institution, or firm.
- Provide the total number of employees in the organization (all facilities).
- Provide the total number and total floor area of the organization's buildings.
- Provide the name, number, rating system, and certification levels for organization buildings previously certified under LEED.

2. Building History

- Provide previous construction and occupancy dates.
- Describe changing uses over the building's lifetime.
- Describe any major upgrades over the building's lifetime.

3. Applicant Project Team

- Describe how the certification process was led and managed.
- Describe how personnel involved in the ongoing management of the building, including internal staff and external contractors, were engaged in the *LEED Canada EB:O&M* implementation and documentation process.
- Describe the level of management buy-in and how the buy-in was achieved.

4. Project Challenges

- Describe challenges that arose during preparation for *LEED Canada EB:O&M* certification, the reasons these challenges arose, and the team's approach to overcoming them.

X. MULTITENANT BUILDINGS

LEED Canada EB:O&M certification applies only to whole buildings. Multitenant buildings (single buildings that contain floor area under the ownership or tenancy of more than one entity) must involve at least 90% of the total gross floor space. Calculate project scope floor space by dividing the project's floor space by the total gross floor space.

Multitenant buildings may face particular challenges in earning *LEED Canada EB:O&M* credits. All prerequisites should be possible for multitenant buildings, since they address base building systems or are limited to areas under management control. However, many credits require commitment and cooperation from tenants. Multitenant building project teams must determine which credits can be pursued based on the lease structure and management situation. They may either pursue credits that do not require tenant commitment or obtain commitments from enough tenants to achieve credit requirements. Projects that have a few large tenant spaces may be able to satisfy participation requirements more easily than buildings with many small tenant spaces.

All prerequisites (except EQ prerequisite 2: Environmental Tobacco Smoke Control) and credits offer a 10% floor area exemption option for multitenant buildings. If it is not possible to gather the necessary tenant data for these credits, the project team can exempt up to 10% of the building's gross floor area. The LEED Letter Templates indicate whether it is also necessary to submit a narrative listing the management, occupancy, and floor area of all exempted spaces and summarizing the attempts the team made to acquire the data from those tenants.

XI. FACILITY ALTERATIONS AND ADDITIONS

Although *LEED Canada EB:O&M* focuses mainly on sustainable ongoing building operations, it also embraces sustainable alterations and new additions to existing buildings.

In general parlance, alterations and additions may range from a complete gutting, major renovation or large new wing to the replacement of an old window, sheet of drywall or section of carpet.

In *LEED Canada EB:O&M*, however, alterations and additions has a specific meaning. It refers to changes that affect usable space in the building. Mechanical, electrical or plumbing system upgrades that involve no disruption to usable space are excluded.

Only alterations and additions within the following limits are eligible for inclusion in *LEED Canada EB:O&M* certification (i.e. can contribute to credits that recognize sustainable practices in facility alterations and additions):

- **Maximum.** For alterations, those that affect no more than 50% of the total building floor area or cause relocation of no more than 50% of regular building occupants. For additions, those that increase the total building floor area by no more than 50%. Buildings with alterations or additions exceeding these limits should pursue certification under the LEED Canada for New Construction program.
- **Minimum.** Alterations that include construction activity by more than one trade specialty, make substantial changes to at least one entire room in the building, and require isolation of the work site from regular building occupants for the duration of construction are eligible. Additions that increase the total building floor area by at least 5% are eligible. Alterations or additions below these limits are considered repairs, routine replacements or minor upgrades and are ineligible to earn points under *LEED Canada EB:O&M*. The minimum applies to Materials & Resources (MR) Credits 3 and 9, and Indoor Environmental Quality (EQ) Credit 1.5.

XII. EXEMPLARY PERFORMANCE STRATEGIES

Exemplary performance strategies result in performance that greatly exceeds the performance level or expands the scope required by an existing *LEED Canada EB:O&M* credit. To earn exemplary performance credits, teams must meet the performance level defined by the next step in the threshold progression. For credits with more than one compliance path, an Innovation in Operations point can be earned by satisfying more than one compliance path if their benefits are additive. See the Innovation in Operations chapter for further details.

The credits for which exemplary performance points are available through expanded performance or scope are noted throughout this reference guide and on the submittal templates, and they are listed below.

SUSTAINABLE SITES

SS Credit 4: Alternative Commuting Transportation
 SS Credit 5: Site Development — Protect or Restore Open Habitat
 SS Credit 6: Stormwater Quantity Control
 SS Credit 7.1: Heat Island Reduction – Non-Roof
 SS Credit 7.2: Heat Island Reduction – Roof

WATER EFFICIENCY

WE Credit 2: Additional Indoor Plumbing Fixture and Fitting Efficiency
 WE Credit 4.2: Cooling Tower Water Management – Non-potable Water Source Use

ENERGY & ATMOSPHERE

EA Credit 1: Optimize Energy Efficiency Performance
 EA Credit 4: On-Site and Off-Site Renewable Energy
 EA Credit 6: Emissions Reduction Reporting

MATERIALS & RESOURCES

MR Credit 1: Sustainable Purchasing — Ongoing Consumables
 MR Credit 2.1: Sustainable Purchasing — Durable Goods, Electric-Powered Equipment
 MR Credit 2.2: Sustainable Purchasing — Durable Goods, Furniture
 MR Credit 3: Sustainable Purchasing — Facility Alterations and Additions
 MR Credit 4: Sustainable Purchasing — Reduced Mercury in Lamps
 MR Credit 5: Sustainable Purchasing — Food
 MR Credit 7: Solid Waste Management — Ongoing Consumables
 MR Credit 8: Solid Waste Management — Durable Goods
 MR Credit 9: Solid Waste Management — Facility Alterations and Additions

INDOOR ENVIRONMENTAL QUALITY

EQ Credit 2.2: Controllability of Systems - Lighting
 EQ Credit 2.4: Occupant Comfort – Daylight 50% or Views 45% of Spaces
 EQ Credit 3.2: Green Cleaning: Custodial Effectiveness Assessment
 EQ Credit 3.3: Green Cleaning: Purchase of Green Cleaning Products and Materials

XIII. REGIONAL PRIORITY CREDITS

To provide incentive to address geographically specific environmental issues, CaGBC is providing an opportunity for LEED Canada project teams to propose existing credits as Regional Priority credits. For a list of eligible credits and guidance regarding Regional Priority, refer to the CaGBC website (www.cagbc.org).

XIV. POLICY, PROGRAM AND PLAN MODELS

In organizational or facility management, there are high-level statements called “policies” that set the stage for lower-level statements called “programs and/or plans” targeted at implementing those policies. In *LEED Canada EB:O&M*, a policy commits the organization to an overarching course of action, which empowers staff working at the operational level. A policy is a strategic view of a given sustainability goal that sets behavioural boundaries and may encompass a large number of buildings, or an entire organization, in a general way. The program/plan is the field-level operational working document that lays out the series of steps required to meet the sustainability goal in a given building or group of buildings.

POLICIES

In *LEED Canada EB:O&M*, certain policies are required as prerequisites (e.g. MR Prerequisites 1 and 2, EQ Prerequisite 3). Any policies required throughout the *LEED Canada EB:O&M* Rating System must, at a minimum, contain the following components. Project teams are not required to develop separate policies for the purposes of achieving prerequisites and credits as long as they highlight these components in their existing policies.

1. Scope
 - a. Describe the facility management and operations processes to which the policy applies.
 - b. Describe the building components, systems, and materials to which the policy applies.
2. Performance Metric
 - a. Describe the how performance will be measured and/or evaluated.
3. Goals
 - a. Identify the goals that the building strives to meet by adhering to the policy.
 - b. Note: Although project teams must set goals, documentation of actual achievements is not required to demonstrate compliant policies. Teams are encouraged to set high goals and work toward the achievement of these goals.

4. Procedures and Strategies
 - a. Outline the procedures and strategies in place to meet the goals and intent of the policy.
5. Responsible Party
 - a. Identify the teams and individuals involved in implementing the policy.
 - b. Identify and outline the major tasks for the responsible parties.
6. Time Period
 - a. Identify the time period over which the policy is applicable.

PROGRAMS & PLANS

Certain optional credits in *LEED Canada EB:O&M* reward the project team for having a program or plan to operate the building or grounds in a sustainable way. In *LEED Canada EB:O&M* the terms 'program' and 'plan' are used synonymously to reference the facility's operational system in place to implement sustainability goals for certain portions of the building or grounds. A program/plan for a given sustainability goal may or may not have an associated policy.

The Letter Templates for several *LEED Canada EB:O&M* credits specify that the project team must provide a compliant written program/plan as part of the certification process (e.g. SS Credits 2 and 3, EQ Credit 3.1). For those credits, the program/plan must meet certain minimum requirements, as defined by the key elements listed below:

1. Goals and Scope - the intent of the program/plan, the physical or programmatic boundaries of the program/plan.
2. Responsible Party(ies) – the party responsible for program/plan development and oversight of implementation. If the key responsible party is a contractor or consultant to the facility owner or property manager, list the contractor or consultant's title as well as the title of the in-house person to whom that person reports.
3. Guidance for Resources and Implementation - the guidance documents or information used to instruct personnel on the required sustainability practices and implementing them in the field. These may include: standard operating procedures; process outlines; program budgets; educational/communications materials; recommended/required product lists and sources; excerpts from contract language; or similar materials that enable the successful ongoing implementation of the program/plan.
4. Performance Measurement – how actual outcomes and sustainability performance for each element of the program/plan will be measured and tracked over time.
5. Quality Assurance/Quality Control Processes – a description of how the responsible party verifies that the program/plan is being successfully implemented, the performance measurement methods truly reflect the actual outcomes, and that sustainable performance persists over time.

Applicants are not required to develop separate written programs/plans for the purposes of achieving *LEED Canada EB:O&M* credits as long as they highlight these components in their existing operations documents or contracts. Also, where elements of the program/plan repeat elements of an associated *LEED Canada EB:O&M* policy, it is not necessary to replicate that information in the program/plan.

A company-wide program/plan is acceptable for *LEED Canada EB:O&M*; it is not necessary to have a completely unique document dedicated to each project building. However, all building-specific requirements, special circumstances or exceptions must be identified and listed in an addendum or supplement to the company-wide program/plan.

NOTE: *LEED Canada EB:O&M* also uses the word “plan” in some credits to reference a technical document produced by an industry specialist, e.g. “stormwater management plan”, “building operating plan”, or “commissioning plan”. In these cases, this use of “plan” is intended to capture an industry term, and such technical plans have a different definition as what is defined in this LEED Plan Model.

XV. CREDIT COMPLIANCE

TEAM MEMBER RESPONSIBILITY

For certain prerequisites and credits, specific team members take responsibility for implementation and signing the Letter Template. The list of prerequisites and credits that must be overseen by specific team members is as follows:

PROPERTY MANAGER

- SS Credit 2: Building Exterior and Hardscape Management Plan
 - SS Credit 3: Integrated Pest Management, Erosion Control, and Landscape Management Plan
 - SS Credit 4: Alternative Commuting Transportation
 - WE Prerequisite 1: Water Metering and Minimum Indoor Plumbing Fixture and Fitting Efficiency
 - WE Credit 4.1: Cooling Tower Water Management – Chemical Management
 - WE Credit 4.2: Cooling Tower Water Management – Non-potable Water Source Use
 - EA Prerequisite 1: Energy Efficient Best Management Practices – Planning, Documentation and Opportunity Assessment
 - EA Prerequisite 3: Refrigerant Management – Ozone Protection
 - EA Credit 2.1: Existing Building Commissioning – Investigation and Analysis
 - EA Credit 2.2: Existing Building Commissioning – Implementation
 - EA Credit 2.3: Existing Building Commissioning – Ongoing Commissioning
 - EA Credit 3.1: Performance Measurement – Building Automation System
 - EA Credit 5: Enhanced Refrigerant Management
 - MR Prerequisite 1: Sustainable Purchasing Policy
 - MR Prerequisite 2: Solid Waste Management Policy
 - EQ Prerequisite 1: Minimum IAQ Performance
 - EQ Credit 1.1: IAQ Best Management Practices – IAQ Management Program
 - EQ Credit 1.2: IAQ Best Management Practices – Outdoor Air Delivery Monitoring
 - EQ Credit 1.3: IAQ Best Management Practices – Increased Ventilation
- EQ CREDIT 1.5: IAQ BEST MANAGEMENT PRACTICES – IAQ

MANAGEMENT FOR FACILITY ALTERATIONS AND ADDITIONS

- EQ Credit 2.1: Occupant Comfort – Occupant Survey
- EQ Credit 2.3: Occupant Comfort – Thermal Comfort Monitoring
- EQ Credit 3.2: Green Cleaning – Custodial Effectiveness Assessment
- EQ Credit 3.4: Green Cleaning – Sustainable Cleaning Equipment
- EQ Credit 3.5: Green Cleaning – Indoor Chemical & Pollutant Source Control
- EQ Credit 3.6: Green Cleaning – Indoor Integrated Pest Management
- IO Credit 3: Documenting Sustainable Building Cost Impacts

FACILITY MANAGER

- SS Credit 2: Building Exterior and Hardscape Management Plan
- SS Credit 3: Integrated Pest Management, Erosion Control, and Landscape Management Plan
- SS Credit 4: Alternative Commuting Transportation
- WE Prerequisite 1: Water Metering and Minimum Indoor Plumbing Fixture and Fitting Efficiency
- WE Credit 4.1: Cooling Tower Water Management – Chemical Management
- WE Credit 4.2: Cooling Tower Water Management – Non-potable Water Source
- EA Prerequisite 1: Energy Efficient Best Management Practices – Planning, Documentation and Opportunity Assessment
- EA Prerequisite 3: Refrigerant Management – Ozone Protection
- EA Credit 2.1: Existing Building Commissioning – Investigation and Analysis
- EA Credit 2.2: Existing Building Commissioning – Implementation
- EA Credit 2.3: Existing Building Commissioning – Ongoing Commissioning
- EA Credit 3.1: Performance Measurement – Building Automation System
- EA Credit 5: Refrigerant Management
- MR Prerequisite 1: Sustainable Purchasing Policy
- MR Prerequisite 2: Solid Waste Management Policy
- EQ Prerequisite 1: Minimum IAQ Performance
- EQ Credit 1.1: IAQ Best Management Practices – IAQ Management Program
- EQ Credit 1.2: IAQ Best Management Practices – Outdoor Air Delivery Monitoring
- EQ Credit 1.3: IAQ Best Management Practices – Increased Ventilation
- EQ Credit 1.5: IAQ Best Management Practices – IAQ Management for Facility Alterations and Additions
- EQ Credit 2.1: Occupant Comfort – Occupant Survey
- EQ Credit 2.3: Occupant Comfort – Thermal Comfort Monitoring
- EQ Credit 3.2: Green Cleaning – Custodial Effectiveness Assessment
- EQ Credit 3.4: Green Cleaning – Sustainable Cleaning Equipment
- EQ Credit 3.5: Green Cleaning – Indoor Chemical & Pollutant Source Control
- EQ Credit 3.6: Green Cleaning – Indoor Integrated Pest Management
- IO Credit 3: Documenting Sustainable Building Cost Impacts

BUILDING OPERATIONS AND MAINTENANCE STAFF

- WE Credit 4.1: Cooling Tower Water Management – Chemical Management
- WE Credit 4.2: Cooling Tower Water Management – Non-potable Water Source Use
- EA Prerequisite 1: Energy Efficient Best Management Practices – Planning, Documentation and Opportunity Assessment
- EA Prerequisite 3: Refrigerant Management – Ozone Protection
- EA Credit 2.1: Existing Building Commissioning – Investigation and Analysis
- EA Credit 2.2: Existing Building Commissioning – Implementation
- EA Credit 2.3: Existing Building Commissioning – Ongoing Commissioning
- EA Credit 3.1: Performance Measurement – Building Automation System
- EA Credit 5: Refrigerant Management
- EQ Prerequisite 1: Minimum IAQ Performance
- EQ Credit 1.2: IAQ Best Management Practices – Outdoor Air Delivery

GROUNDSKEEPER

SS Credit 2: Building Exterior and Hardscape Management Plan

SS Credit 3: Integrated Pest Management, Erosion Control, and Landscape

DESIGN & CONSTRUCTION STREAMLINED CREDITS

For some credits, the Design & Construction streamlined path is available to registered projects that have previously been certified under a LEED design and construction rating system (e.g. LEED for New Construction, LEED for Core and Shell, etc.). The *LEED Canada EB:O&M* Letter Templates for these credits include streamlined paths as a submittal option. The relevant credits are as follows:

SS Credit 1: LEED Certified Design and Construction

SS Credit 5: Site Development – Protect or Restore Open Habitat

SS Credit 6: Stormwater Quantity Control

SS Credit 7.1: Heat Island Reduction – Non-Roof

SS Credit 7.2: Heat Island Reduction – Roof

SS Credit 8: Light Pollution Reduction

WE Prerequisite 1: Minimum Indoor Plumbing Fixture and Fitting Efficiency (streamlined path only available for projects certified under LEED Canada-NC 2009)

WE Credit 2: Additional Indoor Plumbing Fixture and Fitting Efficiency (streamlined path only available for projects certified under LEED Canada-NC 2009)

EA Prerequisite 3: Refrigerant Management – Ozone Protection

EA Credit 5: Enhanced Refrigerant Management

EQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control

EQ Credit 2.2: Controllability of Systems – Lighting

EQ Credit 2.4: Daylight and Views

EQ Credit 3.5: Green Cleaning – Indoor Chemical & Pollutant Source Control

LICENSED PROFESSIONAL EXEMPTION FORMS

For some credits, the Licensed Professional Exemption streamlined path is available to registered projects who have licensed professionals on their project teams. This streamlined path reduces the amount of documentation needed for submittal.

The Licensed Professional Exemption (LPE) Forms can be used by a project team's registered professional engineer, registered architect, or registered landscape to follow a streamlined path to certain credits, bypassing otherwise-required submittals. The licensed professional and project team may choose a streamlined path in lieu of the standard submittal documents, and these forms are used in conjunction with the declarations on the LEED Letter Templates to document these exemptions. A form is required for any eligible submittal requirements the project team wishes to waive; the exemption is invalid without a properly executed Licensed Professional Exemption Form. One LPE form must be completed for each credit where the team wishes to waive documentation. Table 3 lists the submittals eligible for licensed professional exemption.

TABLE 3. SUBMITTALS ELIGIBLE FOR LICENSED PROFESSIONAL EXEMPTION

CREDIT/PREREQUISITE	TITLE	SUBMITTAL
SS Credit 5	Site Development - Protect or Restore Open Habitat	Option B, narrative
SS Credit 5	Site Development - Protect or Restore Open Habitat	Option C, narrative
SS Credit 6	Stormwater Quantity Control	Option B, assessment report or stormwater calculator, narratives
SS Credit 7.1	Heat Island Reduction, Non-Roof	Option B, documentation to substantiate areas
SS Credit 7.2	Heat Island Reduction, Roof	Option B, documents provided
EA Credit 3.1	Performance Measurement - Building Automation System	Summary report, maintenance plan
EA Credit 5	Enhanced Refrigerant Management	Option B, narrative
EQ Prerequisite 1	Minimum IAQ Performance	Option B, design documentation
EQ Credit 1.2	IAQ Best Management Practices - Outdoor Air Delivery Monitoring	Option A, outdoor air AHU table, airflow measurement devices, trend graph
EQ Credit 1.2	IAQ Best Management Practices - Outdoor Air Delivery Monitoring	Option B, floor plan submittals, air flow measurement devices, CO2 data sensor table, trend graph
EQ Credit 1.2	IAQ Best Management Practices - Outdoor Air Delivery Monitoring	Option C, floor plan submittals, air flow measurement devices, CO2 sensor data table, trend graph
EQ Credit 2.3	Occupant Comfort - Thermal Comfort Monitoring	Supporting submittals

XVI. REFERENCE TABLES

TABLE 4. DIFFERENCES BETWEEN *LEED CANADA EB:O&M* AND USGBC'S *LEED-EB: O&M 2009*

CREDIT NUMBER	CREDIT NAME	NO CHANGE	MINOR CHANGE	MAJOR CHANGE
SUSTAINABLE SITES				
SSc1	LEED Certified Design and Construction	√		
SSc2	Building Exterior and Hardscape Management Plan		√	
SSc3	Integrated Pest Management, Erosion Control, and Landscape Management Plan			√
SSc4	Alternative Commuting Transportation		√	
SSc5	Site Development: Protect or Restore Open Habitat			√
SSc6	Stormwater Quantity Control	√		
SSc7.1	Heat Island Reduction: Non-Roof			√
SSc7.2	Heat Island Reduction: Roof	√		
SSc8	Light Pollution Reduction		√	

CREDIT NUMBER	CREDIT NAME	NO CHANGE	MINOR CHANGE	MAJOR CHANGE
WATER EFFICIENCY				
WEp1	Water Metering and Minimum Indoor Plumbing Fixture and Fitting Efficiency			√
WEc1.1 & c1.2	Water Performance Measurement			√
WEc2	Additional Indoor Plumbing Fixture and Fitting Efficiency	√		
WEc3	Water Efficient Landscaping	√		
WEc4.1 & c4.2	Cooling Tower Water Management Chemical Management & Non-potable Water Source Use	√		

CREDIT NUMBER	CREDIT NAME	NO CHANGE	MINOR CHANGE	MAJOR CHANGE
ENERGY AND ATMOSPHERE				
EAp1	Energy Efficiency Best Management Practices: Planning, Documentation, and Opportunity Assessment		√	
EAp2	Minimum Energy Efficiency Performance	√		
EAp3	Refrigerant Management: Ozone Protection			√
EAc1	Optimize Energy Efficiency Performance			√
EAc2.1	Existing Building Commissioning: Investigation and Analysis	√		
EAc2.2	Existing Building Commissioning: Implementation	√		
EAc2.3	Existing Building Commissioning: Ongoing Commissioning	√		
EAc3.1	Performance Measurement: Building Automation System			√
EAc3.2 & c3.3	Performance Measurement: System-Level Metering	√		
EAc4	On-Site and Off-Site Renewable Energy		√	
EAc5	Refrigerant Management	√		
EAc6	Emissions Reduction Reporting			√

CREDIT NUMBER	CREDIT NAME	NO CHANGE	MINOR CHANGE	MAJOR CHANGE
MATERIALS AND RESOURCES				
MRp1	Sustainable Purchasing Policy	√		
MRp2	Solid Waste Management Policy	√		
MRC1	Sustainable Purchasing: Ongoing Consumables		√	
MRC2.1	Sustainable Purchasing: Durable Goods - Electric-Powered Equipment	√		
MRC2.2	Sustainable Purchasing: Durable Goods - Furniture		√	
MRC3	Sustainable Purchasing: Facility Alterations and Additions		√	
MRC4	Sustainable Purchasing: Reduced Mercury in Lamps		√	
MRC5	Sustainable Purchasing: Food		√	
MRC6	Solid Waste Management: Waste Stream Audit	√		
MRC7	Solid Waste Management: Ongoing Consumables		√	
MRC8	Solid Waste Management: Durable Goods		√	
MRC9	Solid Waste Management: Facility Alterations and Additions	√		

CREDIT NUMBER	CREDIT NAME	NO CHANGE	MINOR CHANGE	MAJOR CHANGE
INDOOR ENVIRONMENTAL QUALITY				
EQp1	Minimum IAQ Performance	√		
EQp2	Environmental Tobacco Smoke (ETS) Control			√
EQp3	Green Cleaning Policy	√		
EQc1.1	IAQ Best Management Practices: IAQ Management Program	√		
EQc1.2	IAQ Best Management Practices: Outdoor Air Delivery Monitoring		√	
EQc1.3	IAQ Best Management Practices: Increased Ventilation	√		
EQc1.4	IAQ Best Management Practices: Reduce Particulates in Air Distribution			√
EQc1.5	IAQ Best Management Practices: Management for Facility Alterations and Additions			√
EQc2.1	Occupant Comfort: Occupant Survey	√		
EQc2.2	Controllability of Systems: Lighting	√		
EQc2.3	Occupant Comfort: Thermal Comfort Monitoring	√		
EQc2.4	Daylight and Views		√	
EQc3.1	Green Cleaning: High-Performance Cleaning Program		√	
EQc3.2	Green Cleaning: Custodial Effectiveness Assessment	√		
EQc3.3	Green Cleaning: Purchase of Sustainable Cleaning Products and Materials			√
EQc3.4	Green Cleaning: Sustainable Cleaning Equipment	√		
EQc3.5	Green Cleaning: Indoor Chemical & Pollutant Source Control	√		
EQc3.6	Green Cleaning: Indoor Integrated Pest Management	√		

CREDIT NUMBER	CREDIT NAME	NO CHANGE	MINOR CHANGE	MAJOR CHANGE
INNOVATION IN OPERATIONS				
IOc1.1 - c1.4	Innovation in Operations	√		
IOc2	LEED Accredited Professional	√		
IOc3	Documenting Sustainable Building Cost Impacts	√		
CREDIT NUMBER	CREDIT NAME	NO CHANGE	MINOR CHANGE	MAJOR CHANGE
REGIONAL PRIORITY CREDIT				
RPc1.1 - 1.4	Regional Priority Credits			√

TABLE 5. LEED CANADA EB:O&M SCORECARD

CREDIT NUMBER	CREDIT NAME	POINTS
SUSTAINABLE SITES		26
SSc1	LEED Certified Design and Construction	4
SSc2	Building Exterior and Hardscape Management Plan	1
SSc3	Integrated Pest Management, Erosion Control, and Landscape Management Plan	1
SSc4	Alternative Commuting Transportation	15
SSc5	Site Development: Protect or Restore Open Habitat	1
SSc6	Stormwater Quantity Control	1
SSc7.1	Heat Island Reduction: Non-Roof	1
SSc7.2	Heat Island Reduction: Roof	1
SSc8	Light Pollution Reduction	1

CREDIT NUMBER	CREDIT NAME	POINTS
WATER EFFICIENCY		14
WEp1	Water Metering and Minimum Indoor Plumbing Fixture and Fitting Efficiency	None
WEc1.1 & c1.2	Water Performance Measurement	2
WEc2	Additional Indoor Plumbing Fixture and Fitting Efficiency	5
WEc3	Water Efficient Landscaping	5
WEc4.1 & c4.2	Cooling Tower Water Management Chemical Management & Non-potable Water Source Use	2
CREDIT NUMBER	CREDIT NAME	POINTS
ENERGY AND ATMOSPHERE		35
EAp1	Energy Efficiency Best Management Practices: Planning, Documentation, and Opportunity Assessment	None
EAp2	Minimum Energy Efficiency Performance	None
EAp3	Refrigerant Management: Ozone Protection	None
EAc1	Optimize Energy Efficiency Performance	18
EAc2.1	Existing Building Commissioning: Investigation and Analysis	2
EAc2.2	Existing Building Commissioning: Implementation	2
EAc2.3	Existing Building Commissioning: Ongoing Commissioning	2
EAc3.1	Performance Measurement: Building Automation System	1
EAc3.2 & c3.3	Performance Measurement: System-Level Metering	2
EAc4	On-Site and Off-Site Renewable Energy	6
EAc5	Refrigerant Management	1
EAc6	Emissions Reduction Reporting	1

CREDIT NUMBER	CREDIT NAME	POINTS
MATERIALS AND RESOURCES		10
MRp1	Sustainable Purchasing Policy	None
MRp2	Solid Waste Management Policy	None
MRC1	Sustainable Purchasing: Ongoing Consumables	1
MRC2.1	Sustainable Purchasing: Durable Goods - Electric-Powered Equipment	1
MRC2.2	Sustainable Purchasing: Durable Goods - Furniture	1
MRC3	Sustainable Purchasing: Facility Alterations and Additions	1
MRC4	Sustainable Purchasing: Reduced Mercury in Lamps	1
MRC5	Sustainable Purchasing: Food	1
MRC6	Solid Waste Management: Waste Stream Audit	1
MRC7	Solid Waste Management: Ongoing Consumables	1
MRC8	Solid Waste Management: Durable Goods	1
MRC9	Solid Waste Management: Facility Alterations and Additions	1

CREDIT NUMBER	CREDIT NAME	POINTS
INDOOR ENVIRONMENTAL QUALITY		15
EQp1	Minimum IAQ Performance	None
EQp2	Environmental Tobacco Smoke (ETS) Control	None
EQp3	Green Cleaning Policy	None
EQc1.1	IAQ Best Management Practices: IAQ Management Program	1
EQc1.2	IAQ Best Management Practices: Outdoor Air Delivery Monitoring	1
EQc1.3	IAQ Best Management Practices: Increased Ventilation	1
EQc1.4	IAQ Best Management Practices: Reduce Particulates in Air Distribution	1
EQc1.5	IAQ Best Management Practices: IAQ Management for Facility Alterations and Additions	1
EQc2.1	Occupant Comfort: Occupant Survey	1
EQc2.2	Controllability of Systems: Lighting	1
EQc2.3	Thermal Comfort Monitoring	1
EQc2.4	Daylight and Views	1
EQc3.1	Green Cleaning: High-Performance Cleaning Program	1
EQc3.2	Green Cleaning: Custodial Effectiveness Assessment	1
EQc3.3	Green Cleaning: Purchase of Sustainable Cleaning Products and Materials	1
EQc3.4	Green Cleaning: Sustainable Cleaning Equipment	1
EQc3.5	Green Cleaning: Indoor Chemical & Pollutant Source Control	1
EQc3.6	Green Cleaning: Indoor Integrated Pest Management	1
TOTAL CORE POINTS		100

CREDIT NUMBER	CREDIT NAME	POINTS
INNOVATION IN OPERATIONS		6
IOc1.1 - c1.4	Innovation in Operations	4
IOc2	LEED Accredited Professional	1
IOc3	Documenting Sustainable Building Cost Impacts	1
REGIONAL PRIORITY		4
RPc1.1 - 1.4	Regional Priority	4
TOTAL AVAILABLE POINTS		110

ENDNOTES

¹Tools for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI). U.S. Environmental Protection Agency, Office of Research and Development. <http://www.epa.gov/nrmrl/std/sab/traci/>.

²Relative impact category weights based on an exercise undertaken by NIST (National Institute of Standards and Technology) for the BEES program. <http://www.bfrl.nist.gov/oe/software/bees/>.