

## 18.0 RATING SYSTEMS

*"We avoided using the LEED checklist to design this building. We established goals based on what was the right thing to do. We wanted to avoid 'point-chasing'."*

*- Martin Nielsen, Principal, Perkins +Will*



Image 18.1 Pathway through CIRS with Solar Aquatics System and bio-swale on the right.  
Photograph by Martin Tessler

### 18.1 Overview

CIRS is targeting certification through both the LEED (Leadership in Energy and Environmental Design) Canada New Construction 1.0 and Living Building Challenge 1.3 rating systems. LEED certification had been an early objective for the project, but the goals and targets went beyond the highest level of the performance required to achieve the highest level of LEED certification. The leadership and design teams adopted the certification of CIRS through the Living Building Challenge as a project target when the project returned to the UBC Point Grey campus in 2008. At that time, no buildings had been certified as a Living Building <sup>1</sup>.

1- As of August 2011, only three buildings in North America have been certified as Living Buildings.

### LESSONS LEARNED

Lessons Learned will be updated after the certification process is complete.

- 1.0 Executive Summary
- 2.0 Project Background & Overview
- 3.0 Vision & Leadership
- 4.0 Goals & Targets
- 5.0 Partnerships
- 6.0 Research
- 7.0 Building Design
- 8.0 Design Process
- 9.0 Structural System & Wood
- 10.0 Building Materials
- 11.0 Energy Systems
- 12.0 Rainwater System
- 13.0 Reclaimed Water System
- 14.0 Landscape & Site
- 15.0 Living Roof & Living Wall
- 16.0 Lighting
- 17.0 Ventilation
- 18.0 Building Rating Systems
  - 18.1 Overview
  - 18.2 Description
  - 18.3 Campus Context
  - 18.4 Goals & Targets
  - 18.5 Benefits
  - 18.6 Challenges
  - 18.7 Lessons Learned

#### FUTURE SECTIONS TO BE ADDED:

- 19.0 Monitoring & Measurement
- 20.0 Construction
- 21.0 Commissioning & Performance Testing
- 22.0 Inhabitants vs. Occupants
- 23.0 Community (food...)
- 24.0 Operations & Maintenance
- 25.0 Continual Evaluations

**AGENTS***Architects: Perkins + Will**Structural Engineer: Fast & Epp**M/E/P Engineer: Stantec**Landscape Architect: PWL Partnership**Water Consultants: Eco Tek, NovaTec**Project Sponsor: Dr. John Robinson**Project Manager: Alberto Cayuela**UBC Properties Trust**UBC Campus and Community Planning**UBC Operations**UBC Utilities***18.2 Description****LEED**

LEED, which stands for Leadership in Energy and Environmental Design, is a program that administers building certification and professional accreditation. Its purpose is to encourage the growth of sustainable green building and development practices around the world. LEED was originally developed by the United States Green Building Council (USGBC) in the late nineties and adopted for use in Canada in 2004 by the Canadian Green Building Council (CaGBC), through the efforts of LEED BC Steering Committee. The LEED Green Building Rating System is a voluntary third-party rating system for building projects. The program is comprised of several different systems to accommodate various types of projects, including New Construction, Core and Shell, Existing Buildings (renovations), Commercial Interiors and Neighborhoods.

LEED is both a prescriptive and performance based system. Projects accumulate points based on meeting certain metric and the inclusion certain design and construction strategies. The more points achieved the higher the level of certification: 26-32 point is LEED Certified, 33-38 points is LEED Silver, 39-51 points is LEED Gold and 52-70 points is LEED Platinum. The points are awarded through achievement of Credits and Prerequisites divided into different categories that vary somewhat between the different rating systems. For New Construction projects, such as CIRS, there are five main categories:

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

A sixth category, Innovation in Design, allows for the achievement of additional points through creative design strategies not explicitly included in the ratings systems and exceptional achievement of metrics that go beyond the requirements for other credits.

Please see the Canada Green Building website for further information. <http://www.cagbc.org/AM/Template.cfm?Section=LEED>

## Living Building Challenge

In 2006, the Cascadia Chapter of the United States and Canada Green Building Councils introduced the Living Building Challenge in 2006. The Living Building Challenge (LBC) is a third party rating system for sustainable buildings that is now maintained by the International Living Future Institute (ILFI). The stated intention of the ILFI is to create a future that is “Socially Just, Culturally Rich and Ecologically Benign”.

The LBC is a performance based rating system that contains 20 ‘imperatives’ that a project must achieve to be certified as a Living Building. The 20 imperatives are divided into 7 categories called Petals that cover the impacts of:

- Site development (SITE),
- Water consumption (WATER),
- Energy consumption (ENERGY),
- The interior environment (HEALTH),
- The building materials and construction practices (MATERIALS),
- The project on the equity of the occupants and community (EQUITY), and
- The beauty of the project (BEAUTY).

While the initial version of Living Building Challenge was launched in 2006, CIRS is using the 1.3 version of the LBC (LBC 2.0 is the current version of the system). The intention of the ILFI is that the LBC can be applied to projects at any scale, in any location around the world. Four different typologies of projects are recognized - neighborhood, building, landscape and infrastructure, and renovation - and in recognition of the distinctions between typologies some imperatives are exempts for certain typologies. The imperatives are performance based and require the demonstration of actual results, not modeled or designed. To apply for certification, projects must provide measured results from an operational period of twelve months.

Please see the Canada Green Building website for further information.  
<https://ilbi.org/lbc>

## PROCESS

*Design process:*

*Construction:*

*Commissioning:*

*Operations:*

## COSTS

*Costs will be added in a future update.*

## RELATED SECTIONS

*4.0 Goals & Targets**7.0 Building Design**8.0 Design Process**10.0 Building Materials**20.0 Construction**21.0 Commissioning &  
Performance Testing**24.0 Operation & Maintenance***18.3 Campus Context**

As of 2009, all building projects on UBC Point Grey Campus must be designed to achieve LEED Gold certification (39-51 points) or an approved equivalent. UBC requires that some optional LEED credits are mandatory for projects on campus. Some credits, both mandatory and optional, have additional requirements when implemented at UBC.

LEED credits that are mandatory at UBC:

- Sustainable Sites credit 6 – storm water management
- Energy and Atmosphere credit 1 – optimize energy performance
- Materials and Resources credit 2 – construction waste management

LEED credits with additional UBC-specific requirements:

- Sustainable Sites credit 4 – alternative transportation
- Sustainable Sites credit 7 – heat island effect
- Water Efficiency credit 1 – water efficient landscaping
- Energy and Atmosphere credit 1 – optimize energy performance
- Energy and Atmosphere credit 6 – green power
- Indoor Environmental Quality credit 8 – daylight and views

UBC Design Guidelines section 2.1 Sustainability (pg 9) and Appendix 2 Implementation of LEED Canada-NC at UBC (pg 73-75)

**18.4 Goals & Targets**

This section will be updated after the certification process.

## 18.5 Benefits

This section will be updated after the certification process.

### Expanded and Improved the CIRS Goals

- When the project team re-drafted the goals for CIRS in 2008, they reviewed the LBC for alignment with the goals of CIRS. The team found that the Red List, a list of chemicals and substances with human or environmental health impacts, was the one imperative that was not covered under the previous CIRS goals. The project team decided that the LBC imperatives should become part of the CIRS goals.

## 18.6 Challenges

This section will be updated after the certification process.

### Market Awareness

- LEED is well established and LEED certification has been widely adopted by a number of organizations, including UBC, as their performance standard for measuring the design and construction of green buildings. The global market for building materials and technologies has adapted to LEED and products that meet the LEED criteria are readily available. The information and documentation required for certification is also easily available for most products suppliers. The Living Building Challenge is not widely understood and many material and technology suppliers are not aware that it exists. Finding products that meet the rigorous criteria of the LBC is challenging, but obtaining the documentation required for certification can be even more challenging.

## 18.7 Lessons Learned

This section will be updated after the certification process.

## 18.8 Future Learning

Additional lessons learned over the operational life of the building will be added at periodic intervals.

## RESOURCES

- *Diagrams links*
- *Drawings links*
- *Perkins + Will: [www.perkinswill.ca](http://www.perkinswill.ca)*
- *Fast & Epp: [www.fastepp.com](http://www.fastepp.com)*
- *Stantec: [www.stantec.com](http://www.stantec.com)*
- *PWL Partnership: [www.pwlpartnership.com](http://www.pwlpartnership.com)*
- *EcoTek: [www.ecotek.ca](http://www.ecotek.ca)*
- *Novatec Consultants: [www.novatec.ca](http://www.novatec.ca)*
- *UBC Campus and Community Planning: [www.planning.ubc.ca](http://www.planning.ubc.ca)*
- *CIRS Charette Proceedings*
- *UBC Campus Design Guidelines*
- *UBC Development and Building Regulations*