

## 5.0

# PARTNERSHIPS

*"The different and varied funding sources and partners are a testament to the importance of the project."*

*- Alberto Cayuela, CIRS Project Manager, UBC Sustainability Initiative*



Image 5.1 View of the Modern Green Development Auditorium  
Photograph by Martin Tessler

### 5.1 Overview

Partnerships are a key component of the basic vision of CIRS. To accelerate sustainability effectively, it must extend beyond academic research to include the people developing the technology, materials and building components, as well as to regulators and policy makers. CIRS was designed to be a best practice project capable of replication, which is only possible through the involvement of industry and their efforts to create sustainable products and manufacturing processes. Additionally, the partnerships extend the network of project stakeholders into non-academic fields and enhance both the project credibility and financial viability.

A variety of groups were involved in the different iterations of CIRS. As of August 2011, the four CIRS strategic alliance partners were BC Hydro (the regional electrical utility), Haworth (a supplier of interior building components and furniture), Honeywell (a supplier of building control and monitoring systems) and Modern Green Development Company Ltd. (a green building developer based in China). Each of these groups provided expertise, knowledge and monetary (or equivalent) contributions to the design and construction of CIRS. They are all involved in research efforts involving the operation and use of building systems and components, as well as engagement with inhabitants.

### LESSONS LEARNED

Include industry partners in design.

Use industry partners to build credibility.

Ensure partnership benefits all parties.

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#### FUTURE SECTIONS TO BE ADDED:

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**AGENTS***Leadership Team**University of British Columbia**BC Hydro**Haworth**Honeywell**Modern Green Development**Perkins + Will**Stantec**EcoTek Ecological Technologies Inc.***5.2 Description**

The main sources of funding for CIRS include grants from the Canada Foundation for Innovation (CFI) and the British Columbia Knowledge Development Fund (BCKFD) for the research spaces and sustainable components of CIRS. To qualify for CFI funding, 20 per cent of the CFI-eligible cost of the project must be provided by partner contributions, UBC funding or a combination of the two. These contributions can be either monetary or “in-kind” professional services, equipment or materials. Additional grants were also received from Sustainable Development Technology Canada (SDTC) and Western Economic Diversification Canada (WEDC). The partners were found through network contacts, involvement in previous projects at UBC or with members of the design team, or through responses to a Request for Proposal (RFP) process. The main partnerships were negotiated through agreements on joint sustainability goals and the creation of Memorandums of Understanding (MOUs).

**BC Hydro**

BC Hydro was the first non-academic partner and remains one of the key partners in CIRS. They committed to contributing a significant portion of the capitol required to develop CIRS and were a member of the steering committee from the initial phases onward. BC Hydro was actively involved in the design of the energy technology used in CIRS and contributed professional knowledge and experience in the charrettes and integrated design process.

BC Hydro has office space in CIRS and performs some of their ongoing research there. This includes testing building technology, researching the behaviour of inhabitants interacting with building systems and investigating social engagement with local governments and community groups on sustainability issues relating to energy efficiency and conservation. They are partnering on research projects with some of the inhabitant groups within CIRS, such as the Collaborative for Advanced Landscape Planning, and using the facilities and resources of CIRS for internal research projects. UBC granted BC Hydro naming rights to the BC Hydro Theatre in exchange for their contributions, as well as access for their research and community meetings for a fixed percentage of the total operating time.

**Haworth**

Haworth designs, manufactures and supplies architectural interior products. For CIRS, Haworth provided the raised access flooring system, the modular partition walls and all the new furniture. They became involved in the project in 2007, through existing relationships with the design team, and contributed in-kind discounts and special pricing and rebates on equipment and services. Haworth was involved in the design and construction processes by supplying information to engineers designing the systems that integrate with the raised flooring and by working with tenant groups on the fit out of their spaces.

Haworth is involved in monitoring the ongoing use of their architectural products in the building to evaluate their effectiveness. The data from CIRS contributes to their own internal research on cost modelling and analysis of financial performance of building components, including the effect that sustainable choices in design elements and materials have on cost savings. They are also expanding their relationship with the University, including discussions on teaching a course on product life-cycle costing and analysis.

### **Honeywell**

Honeywell is the provider of the building management system for CIRS, which handles building automation, HVAC controls, digital video manager systems, fire alarm, environmental controls and monitoring, and recording operating data from building systems. Their involvement in CIRS began with a response to a Request for Proposal (RFP) put forth by UBC in 2007. They participated in the design charrettes and provided information on the capabilities of the building monitoring system. Honeywell worked with the engineers at Stantec to develop a strategy for the monitoring points within the building and designed the technology system that was included in the engineering documents. They contributed in-kind professional services and systems discounts.

Honeywell is developing its own set of research objectives to apply to CIRS, including experiments to develop and test new technology, and will continue to work with UBC Building Operations. Through early involvement in the design process they were able to influence the design to create a more effective integrated monitoring system and get approval for the first-time use in North America of certain technologies, such as wireless temperature sensors to provide spot measurements. Honeywell is using feedback from the system to provide ongoing data for their research towards finding the optimal arrangement and use of monitoring equipment in buildings.

### **Modern Green Development**

Modern Green Development Co. Ltd. is a large property development company focusing on green building. Most of their work is located in China and Australia, but they are currently developing projects in the North American market. They entered into a partnership with the University of British Columbia in early 2011, after discussion during the 2010 Olympics, and contributed a significant amount of capital for the development of CIRS, including funding the initiative for this Manual.

The focus of the strategic partnership is green building research and development at UBC and will involve applied research in sustainable policy, processes and development of new technology. Internships and student exchanges working at Modern Green projects are part of the collaboration. The partnership will allow for the testing of sustainable building products and technology at CIRS and at the sites of Modern Green developments throughout the world, including a new housing development at the UBC Vancouver campus.

## **PROCESS**

### *Design process:*

*Partners were involved in the charrettes and worked with the design team, UBC and tenant groups to create the best design solutions and application for their products in CIRS.*

### *Construction:*

### *Commissioning:*

### *Operations:*

*Partners are involved in ongoing research through the operation and inhabitation of the building.*

## COSTS

*Costs will be added in a future update*

### **Design Team**

Members of the design team have also contributed professional services to the CIRS project. Perkins + Will and Stantec donated time to prepare the original feasibility studies in 2002 and 2004. EcoTek, the design-build contractor for the Solar Aquatic wastewater treatment system, and Novatec, the designer of the rainwater filtration and purification system, contributed some of their professional services in the design and installation of the systems. They are also involved, as a consultant, in the ongoing operations of the reclaimed water and rainwater systems as consultants.

### **Suppliers**

Some suppliers of building materials, components and equipment that were purchased with Canada Foundation for Innovation funds and provided special discounts and in-kind donations to the project.

### **Others**

Through the history of the CIRS Project, other companies were involved in the project as industry partners. As the scope, site and design of the project changed over time, partnerships with some of these companies ceased to be valuable.

## 5.3 Campus Context

### Living Lab

One of the pillars of the UBC Sustainability Initiative that integrates sustainability through the combination of teaching, research and operations on campus is the notion of the “Campus as a Living Laboratory”. CIRS is a pilot project for this initiative, which uses the infrastructure and building projects as opportunities to test demonstrate and do research on sustainable design solutions, innovative technology and clean energy. It includes partnerships with industry professionals, as both active participants and in more advisory roles.

### Energy Management

The partnership between BC Hydro and UBC extends beyond the CIRS project and dates to 2005. BC Hydro supplies funding for teaching, research and student engagement activities on campus and the University is involved in many of BC Hydro’s energy conservation programs. UBC is one of the ten largest energy consumers in the province and provides a unique opportunity for BC Hydro to test new technologies, programs and initiatives. One of such initiatives, the Continuous Optimization program, is intended to optimize building performance through real-time monitoring and response and performance analysis. This program will provide data for BC Hydro to help shape other programs throughout the province and help UBC in meeting its goals of reducing energy consumption and greenhouse gas emissions by ten per cent by the year 2015.

### Green Development

The partnership between UBC and Modern Green Development extends beyond CIRS. Modern Green is developing a new mixed-use residential building on the south side of UBC’s Vancouver campus. This development will provide an opportunity for the demonstration of applied research in green building technology, focusing on comfort and energy performance, which is the ambition of the collaboration between both Band the development company.

## RATING SYSTEMS

*The inclusion of industry partners in the project facilitates the achievement of the rating systems requirements, through the more efficient integration of the design components and the application of innovative technology.*

*For more information on the role of rating systems in the creation of CIRS refer to Section 19.0 Ratings Systems.*

## 5.4 Goals & Targets

Table 5.1 lists the project goals and targets specifically related to the partnerships of CIRS. For a complete list of all the goals and targets for CIRS, refer to Section 4.0 Goals & Targets.

Category	Goals	Targets
8 - RAINWATER COLLECTION AND USE	100 per cent of potable water requirements will be met with on-site collected rainwater.	100 per cent rainwater input.
9 - WASTEWATER COLLECTION, TREATMENT & REUSE	All wastewater will be collected and treated on-site or within the 'sustainability precinct'.  Recognize environmental opportunities in the management of human waste.	Zero wastewater output from site.
6 - ENERGY REDUCTION HVAC	Demonstrate that all strategies have the lowest possible energy requirements.	
11 - RESOURCE EFFICIENT BUILDING	Produce a core building that exemplifies replicable, economical solutions.	
13 - BUILDING UTILIZATION	Maximize hours of operations and density of use.	Maximize the intensity of use.
19 - BMA LAB	Utilize the building and resources in partnership with manufactures and authorities to advance knowledge of sustainable design strategies.	
20 - SOFTWARE LAB	CIRS will be a living lab for building researchers and software companies to test predictive software for thermal mass, ventilation models, IAQ and daylighting effectiveness.	
21 - COMMUNITY AND EXTERNAL IMPACTS	Minimize external and community environmental impacts of CIRS's staff and visitors.	
22 - PUBLIC EDUCATION	CIRS will disseminate sustainable design practices, knowledge and experience as widely as possible.	

Table 5.1 Goals & Targets for CIRS Partnerships.

## 5.5 Benefits

The CIRS partnerships benefitted the project in the following ways:

### Cultivated Credibility

- Involving industry partners in a project, especially large international companies, lends credibility. BC Hydro's involvement provided CIRS leadership with high level support for the project and proof of its importance to UBC administration.

### Improved Financial Viability

- The monetary or in-kind support of partners helps ensure the financial viability of a project and provides a strong incentive to complete it. In this case the partnerships provided approximately 25 per cent of the funding required to design and build CIRS.

### Expanded the Stakeholder Network

- Involving industry partners increases the number of people with a stake in the project and extends the network into other fields, broadening the support for the project and making it more financial viable.

### Provided Access to Specialized Knowledge

- Successful companies are experts in their own products and through many projects have developed a large amount of knowledge on the effective design options, best applications and most appropriate technology for specific uses. Including them in the design process allows them to apply their knowledge and experience to a project, helping to avoid repetition of mistakes and optimizing the effectiveness of building systems and components.

### Tapped into Value from Global Experience

- Industry partners often have direct experience in other parts of the world where different types of design practices and technologies are standard. They bring that experience and different types of technology to the project.

### Allowed Access to New Technology

- Including industry partners at a high level in the early phases of design can provide opportunities for access to, and utilization of, new or experimental technology not yet available on the market.

### Generated Additional Funds

- Including more organizations as active partners in the project provides more sources of funding, both directly through the partners and indirectly through their connections. Other sources of funding, such as federal or provincial grants, are often contingent on minimal amounts of outside or industry funds.

### Strengthened Partnerships

- Strategic partnerships at CIRS led to campus-wide agreements between the industry partners and the University as a whole. For example, UBC now has a strategic alliance with Honeywell that grew from a relationship started at CIRS.

**RELATED SECTIONS:***3.0 Vision & Leadership**4.0 Goals & Targets**6.0 Research**7.0 Building Design**8.0 Design Process**19.0 Monitoring & Measurement**20.0 Construction**21.0 Commissioning & Performance Testing**24.0 Operations & Maintenance***5.6 Challenges**

The CIRS partnership were challenging for the project in the following ways:

**Coordinating Design**

- In a standard construction project, an industry supplier simply provides a system or product to specification. Including industry suppliers as partners in the design process involves more complex collaboration between product suppliers, design team engineers and even construction contractors.

**Estimating Costs**

- Clients and partners must be comfortable with an arrangement that involves some uncertainty regarding long-term costs, as the ultimate cost of building systems and component cannot be determined until after a design is established and the value of professional services depends on the complexity of the design and construction process.

**Changing Design can Impact the Benefits to Partners**

- As the design of the project changes over time, the benefits of certain industry partners may decrease and the partnerships need to be re-evaluated. For example, one of the previous iterations of CIRS involved the use of a curtain wall system, however, the design changed to utilize punched openings in the wood structure (in response to the new project context and to achieve better energy modelling results) and therefore the associated partnership made less sense.

**Managing Multiple Funding Sources**

- The expectations and limitations of each funding source must be constantly managed to ensure the continual retention of adequate funding over the course of the project. The more funding sources a project has, the more work is required to form and maintain a solid business case.

**Working Across Distance Between Partners**

- Constant efforts and strong communication are required by both the partner and the Client to build relationships with large companies headquartered in other countries than the project.

## 5.7 Lessons Learned

The experience gained through the CIRS partnerships provided valuable lessons to apply to future projects. Some of the key lessons are:

### Include Industry Partners in Design

- Include industry partners as complete collaborators, along with the architect and engineers, in the design of the building and its systems to help ensure the best application of products and the optimization of systems.

### Use Industry Partners to Build Credibility

- Use industry partners' support of a project, especially through monetary contributions (or equivalent), to help convince other stakeholders and business partners of the credibility and financial viability of the project.

### Ensure Partnership Benefits All Parties

- Ensure that partner arrangements benefit the needs of the project. Re-evaluate the use of the products when the design changes, to ensure that chosen products are still the best choices for the design, operations and use of the building.

## 5.8 Future Learning

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

### RESOURCES:

- *Diagrams links*
- *Drawings links*
- *Canada Foundation for Innovation: [www.innovation.ca](http://www.innovation.ca)*
- *BC Hydro: [www.bchydro.com](http://www.bchydro.com)*
- *Haworth: [www.haworth.com](http://www.haworth.com)*
- *Honeywell: [www.honeywell.com](http://www.honeywell.com)*
- *Modern Green: [www.mgreen.com.cn](http://www.mgreen.com.cn)*