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Building Green: A B.C. Showcase

October 4 – December 14, 2008

About Building Green

Achievements in sustainability combined with architectural excellence are characteristics shared by the projects featured in this exhibition. Examples range from the restoration of the Mole Hill neighbourhood as a heritage project in Vancouver's west end, to the newly completed Olympic Sliding Centre in Whistler. Other notable projects, soon to be completed, include the Bateman Art and Environmental Education Centre, and the North House, which will compete in the Solar Decathlon in Washington, DC in 2009.

List of Projects in Building Green

PROJECT	ARCHITECT
Bateman Art & Environmental Education Centre	Iredale Group Architecture
Chinese Freemasons Building	Joe Y. Wai Architect Inc.
Dockside Green	Busby Perkins+Will
Gulf Island House	Measured Architecture
Mole Hill Housing	Hotson Bakker Boniface Haden architects + urbanistes
Nk'Mip Desert Cultural Centre	Hotson Bakker Boniface Haden architects + urbanistes
Salix Straw Bale Home	Henry Yorke Mann
Solar Decathlon/North House	Team North School of Interactive Arts & Technology Simon Fraser University
TELUS House	Busby Perkins+Will
Vancouver Convention Centre Expansion	PWL Partnership Landscape Architects
The Whistler Sliding Centre	Stantec

Bateman Art & Environmental Education Centre

Architect: Richard Iredale
Iredale Group Architecture, Vancouver, BC
www.iredale.ca

From Royal Roads Press Release December 10, 2007
(edited and updated excerpt below)
http://www.royalroads.ca/about-rru/the-university/news-events/news-releases/2007/Bateman_Architect.htm

Iredale Group to design Bateman Centre at Royal Roads University

Victoria – Royal Roads University has selected an award-winning BC firm to design an environmentally-innovative new building on its heritage site campus.

Iredale Group Architecture, practitioners of sustainable design and community collaboration, will begin work immediately on the Bateman Art and Environmental Education Centre, a building Royal Roads president Allan Cahoon says will be the centrepiece of an initiative to transform the university into a living laboratory for sustainability—one that will make key contributions to the province's climate change action plan for dramatically reducing greenhouse gas emissions by 2020.

"As a place of higher learning, we recognize the vital role we play in shaping tomorrow's environmental leaders and in finding new ways to manage our planet's natural resources," said Cahoon. "This project is the latest manifestation of our commitment to leadership in understanding, celebrating, and protecting our natural world."

With offices in Vancouver and Victoria, Iredale Group was founded in 1980 as a practice focusing on civic, education, and heritage buildings. The firm has completed projects in British Columbia worth in excess of $600 million and has received more than 20 design awards over the past decade.

"This centre will not only be a building where people come and learn, but a special place where the fabulous moving art of Robert Bateman will be integrated in such a way that visitors will leave their day-to-day lives temporarily behind and connect with the wonders of nature around them," said architect Richard Iredale.

The Bateman Art and Environmental Education Centre is envisioned as a 'living building'—a standard that goes beyond LEED (Leadership in Energy and Environmental Design) criteria to create zero greenhouse gas emissions and have a positive impact on the environment. Living buildings, usually constructed from natural local materials, include a variety of solar and thermal designs as well as on-site wastewater treatment systems. This project will also include restoration of the wetland that existed on the centre's site 100 years ago before the family of James Dunsmuir drained the land to graze livestock.

The Bateman Centre will house an extensive collection of donated originals and prints by Robert Bateman, in addition to photographs by Robert and Birgit Bateman as well as archival material, sketch books, and correspondence. It will host art exhibits and offer environmental education programming, including guest lectures and seminars led by Robert Bateman and other artists and educators.

Today's announcement of the selection of Iredale Group and architect Richard Iredale is the culmination of a process that began in June 2007 when Royal Roads issued a call for Expressions of Interest and then struck a committee—which included Robert Bateman—to review and assess submissions.

"The most important issue facing humankind now is wise stewardship of the natural world," said Bateman. "Richard and his team have demonstrated to me that they hold this to be true, and I am pleased Iredale Group will take on the challenge of building Royal Road's first living building."

Planning for the Bateman Centre will begin immediately, with construction slated to start in Spring 2009 and the centre scheduled to open in 2010. While planning and construction is underway, Robert Bateman will be honorary chair of a campaign to raise $30 million: $20 million to build and endow the Bateman Art and Environmental Education Centre and $10 million for other campus sustainability projects.

Consulting Team Architectural/Sustainable Design: Iredale Group Architecture | Campus Infrastructure: Arsenault Project Solutions Ltd. | Facilitation & Project Management: Applied Green Consulting Ltd. | Liquid & Solid Waste Engineering: Worley-Parsons Komex Ltd. | Mechanical & Electrical Engineering: Cobalt Engineering Ltd. | Ecology: Aquatec Scientific Consulting Ltd. | Transportation Planning: Boulevard Transportation Consulting | Landscape Architecture: Jonathon Losee Ltd. | Heritage Consulting Services: Robert Lemon Architect Ltd. | Civil Engineering: 1st Team Civil Engineering

Chinese Freemasons Building

Architect: Joe Y. Wai,
Joe Y. Wai Architect Inc., Vancouver, BC

AIBC Annual Awards 2008/Project Description as provided by Joe Y. Wai Architect Inc.:

History and Character · The Chinese Freemasons Building was completed in 1907, in an era of a number of significant events in our Chinatown, as well as in China. The decade of 1900 – 1910 was critical to modern Chinese history, as it was to Vancouver's Chinatown.

Dr. Sun Yat-Sen, "Father of Modern China", was campaigning for his many revolutions, which were eventually successful in 1911. He was sponsored locally by the Chinese Freemasons and used the building as his headquarters during his visits in 1908 and 1911 to fund-raise. With a growing Vancouver responding to the opening of the Panama Canal, Chinatown was redefined by several significant permanent buildings such as this one, the Lam Sai Hor and Chinese Times buildings on Carrall Street, the Wing Sang additions of 1901 and 1911 and the Chinese Benevolent Association building in 1908 on Pender Street. These events and this group of buildings thus redefined the character of Chinatown. Prior to that, the buildings were essentially composed of what were called "frontier wooden buildings" on Block 17 and Pender (then Dupont) Street. Aside from the unique features and historical significance, it has a spirit of its own that is unlike any other in Chinatown. It has to do with the composition of the thick and thin vertical and horizontal lines, together with the unusual horizontal railing and cornice. It has to do with the sublime colour scheme and mixture of materials, which produces a texture and hue that is subtly captivating. Furthermore, it is the only building that has a Chinatown character on Pender Street and a Gastown character on Carrall Street.

Earlier Renovation · In 1974, the building underwent a renovation from its original use to an office building for an engineering company. The two-storey Freemasons Hall was lost and the mezzanine was compromised to retrofit five 8' to 9' floor/ceiling floors for office use from the original three storeys and mezzanine. In the exterior, the wood sash was replaced by aluminum, as were the railings. Two columns on the Pender Street elevation were eliminated, as were the wooden Chinatown-defining baseboards of the ground level. In short, the building's character was significantly compromised.

Restoration, 2004 – 2007 · The new owner started the project as a restoration. He has a direct historical relationship with the building as his father's family business, Modernize Tailors, occupied a good portion of the ground floor from 1914 to 1970. He wanted to restore the building to its original glory and provide modest seniors' homes on the upper floors. Significant re-planning of the vertical access was involved in order to achieve efficient residential use from the then office use. The restoration was carried out faithfully in accordance with the Vancouver Heritage "Statement of Significance", archival photographs and the advice of the heritage consultants, CHRML (please see Project Credits). Because of its significance as a defining building of character, extraordinary care was exercised to replace lost defining elements such as the railings, the missing columns, the missing exterior baseboards, flagpole and lantern. The exterior was thoroughly cleaned, exposing a large sign of another original tenant, the restaurant on Carrall Street. The pressed metal cornices were also cleaned and reinstalled.

In order to meet current Building Code standards, the building was accordingly fortified structurally. This included an essentially new wall on the north elevation, and a large 20' wide vertical steel truss inside the southeast corner. While the truss could be incorporated into the partitions of the demising walls of the upper floors, it has been left exposed in the large two-storey space on the ground floor. An intricate wooden screen, based on the Chinese Garden "window-screens" or "leak windows" was designed to fill the exposed space of the truss. It helps to give an impression that the truss and screen were an integral part of the space. Originally, this 1500 sf. space was designated as a common Dining Hall for the residents, even though all the units are self-contained units. Today, it has engineering consultants as tenants. Aside from an entrance lobby, a small part of the ground level is for the return of "Modernize Tailors" still operated by the sons of the original owner, and brothers to the present owner.

There are 11 units on the upper level – all have different plans, but share a common character. The variation is required because of the irregular shape of the building and the resolve to restore the shape of the original building, inclusive of the defining recessed balcony for the second to the (now) fifth level.

In restoring the facades, extra care and study were made to ensure the reintroduction of the texture of the "thick and thin verticals and horizontals" (columns, transoms and muntins). The sash is a composite, steel-wrapped wooden sash for durability, "correctness" and elegance. The colours of the elements were also carefully considered to achieve the subtle elegance of its original character.

Commemorative Interpretation · One further interesting component of the project is the commemoration of the building, its early inhabitants and the era in which it was built. This has been a three-year project as well, from early-2005 to date. The researchers were headed by Professor Ed Wickberg and Larry Wong, both past-Presidents of the Chinese Canadian Historical Society. The curated interpretations are installed in the ground level windows exactly as the daily newspaper was 100 years ago by the original tenant, “The Chinese Times”.

Consulting Team Architects: Joe Y. Wai, MAIBC, FRAIC, D.LITT.; Anthony B. Green (MAIBC ret.); Qi Wan, MAIBC | Structural: Jim Mandelli, P.Eng., JM Engineering | Mechanical: S.C. So, P.Eng; Raymond Wong, Mex Engineering | Electrical: Paul Chu, P.Eng., Cobalt Engineering | Builder: Kurt Barber, Makam Construction Ltd. | Geotechnical: Karim Karimzadegan, P.Eng., Horizon Engineering | Housing Requirements: Stuart Thomas, Terra Housing Consultants | Building Envelope: Doug Eaton, P.Eng; Cory Legge, P.Eng., JRS Engineering | Code: Ed Lin, P.Eng., Gage-Babcock & Associates Ltd | Heritage: Dr. Hal Kalman; Christin Doeinghaus, M.Arch; Jonathan Yardley, MAIBC · Commonwealth Historical Resource Management Limited

Dockside Green, Victoria

Architect: Peter Busby, Managing Director
Jim Huffman, Design Principal
Busby Perkins+Will, Vancouver, BC
www.busby.ca

From Busby Perkins+Will website: www.busby.ca/clients/DocksideGreenResidential/index.htm

In 2005 Busby Perkins+Will completed the master plan for the 15-acre mixed-use Dockside Green development in Victoria, British Columbia, which is expected to become the first LEED Platinum community in the world. In 2008 Dockside Green Residential Phase I was completed and reached Platinum at 63 points, making it the highest-scoring LEED Platinum Certified project on record.

Dockside Green Phase I, also referred to as "Synergy", includes four detached buildings constructed over a common underground parking structure, including a nine-storey residential tower with minor commercial units on the groundfloors; a two-storey townhouse; a six-storey building with minor commercial units on the ground floor; and, a four-storey residential building.

Dockside Green is employing an integrated energy system that ensures the development will be greenhouse gas neutral, while also providing the opportunity for the project to become a net-energy provider. The system includes a biomass gasification plant that converts locally-sourced wood waste into a clean burning gas to produce heat and hot water. Among the development's many other sustainable features: an on-site wastewater treatment that is expected to save more than 70,000 gallons of water annually; rooftop gardens; a car co-op with Smart Car; and, additional energy-saving features, including Energy Star appliances, heat recovery ventilations units, Low E double glazed windows and exterior blinds on the west and south faces of each building. A series of ponds spread throughout Dockside's central greenway also assist in on-site stormwater storage while the greenway itself provides significant public open space.

When complete, the Dockside Green development will be a community of approximately 2,500 residents and will also include live/work, hotel, retail, office and light industrial uses, as well as numerous public amenities. Each of the development's 26 buildings is being designed for LEED Platinum certification. Dockside Green was also the first community development to apply for participation in the LEED for Neighborhood Development pilot program offered by the US Green Building Council.

> "Dockside Green has redefined the words bold and leadership when it comes to Green Development. In this one project, what is possible has been redefined for cities everywhere, a brilliant achievement that will change our world." - Paul Hawken Author, Natural Capitalism and Ecology of Commerce

Awards:

2008: GLOBE Awards for Environmental Excellence, Excellence in Urban Sustainability
2007: BC Hydro Power Smart Excellence Award Winner, Innovation in Sustainable Building Design
2006: Smart Growth BC, Process/Proposal Award
2006: RAIC Urban Design Awards, Merit Award, Approved or Adopted Urban Design Plan
2005: Canadian Architect, Award of Excellence

2005: Canadian Urban Institute, Brownie Award, Best Overall Project
2005: Canadian Urban Institute, Brownie Award, Green Design and Technology
2005: Planning Institute of BC, Innovation in Site Planning and Design Award

Consulting Team Architectural: Busby Perkins+Will | Structural: Read Jones Christoffersen | Mechanical/Electrical: Stantec Electrical | Civil Engineering: RCL Consulting | Ecology/Stormwater Management: Aqua-Tex Scientific | Green Building: BuildGreen Consulting | Cost: Andy Payne | Landscape Architects: PWL Partnership | Environmental Soils: Quantum Environmental Remediation | Surveyor: Focus | Geotechnical: C.N. Ryzuk & Associates | Traffic: Boulevard Transportation Group | Contractor: Farmer Construction | Interior Designers: False Creek Design Group Inc. | Code: Gage-Babcock & Associates Ltd. | Envelope: Morrison Herschfield Limited

Gulf Island House

Architect: Matthew Woodruff
Measured Architecture, Vancouver, BC
www.measured.ca

From AIBC Awards Press Release: www.aibc.ca/conference/2008/pdf/conference_mediarelease_apr29.pdf

Like an island, this piece of architecture stands out in its simplicity. As noted in the submission package, it is “a project with a normal program, a normal budget, and a normal site for a normal family”. The end product, however, is exceptional. This is a simple, two-bedroom holiday house one a small 1/3 acre site, positioned to take maximum benefit of sun, site and surroundings. A compact, zoned plan allows maximum heating efficiency while making optimal use of the limited internal space. Strategic window placement and large openings provide both natural light and natural ventilation. The result: energy use that is a mere 25% of a conventional, comparable home.

Jury comments:

> “This is an interesting project; it’s not over-the-top. It’s nice to see architectural modesty.”
>
> “There’s research, risk and innovation in this house. There are subtle but beautiful solutions being proposed.”
>
> “This is a really important project – everything created was purposeful.”

Awards:

2008: Lieutenant Governor of British Columbia Award of Merit

Consulting Team Architect: Matthew Woodruff, Measured Architecture | Structural Engineer: Jones Kwong Kishi

Mole Hill Housing

Architect: Norman Hotson, Principal
Hotson Bakker Boniface Haden architects + urbanistes, Vancouver, BC
www.hotsonbakker.com

The following description provided by Hotson Bakker Boniface Haden architects + urbanistes:

The Mole Hill Housing block, situated in the middle of one of the highest density neighbourhoods and hottest housing markets in North America, had been under the threat of demolition for more than 50 years. After an impressive showing of community support, a partnership agreement was established between The Mole Hill Community Housing Society, the City of Vancouver and BC Housing, to transform the site into affordable housing for low and middle income singles, seniors and families.

Hotson Bakker Boniface Haden with S.R. McEwen Associated Architects was hired to transform the 26 city-owned heritage homes into affordable housing, while at the same time maintain the historic nature of the buildings on the site.

The interior and exterior heritage features of the houses were carefully preserved at each stage of the renovation. Many of Vancouver's "heritage" buildings tend to be heritage only in the façade, with entirely new construction providing the structure of the building. HBBH/S.R. McEwen restored the heritage features both inside and out, while performing necessary code upgrades that did not compromise the overall heritage look and feel of the homes. Each home was adapted to incorporate advanced green building techniques and energy-efficient features such as geothermal heating and low-e lighting and appliances. These techniques help save energy and enhance long-term affordability.

The lots were organized in such a way as to create outdoor areas for tenants to congregate in shared yard-space. One of the most significant aspects of the project is its unique public laneways, which is characterized by shared community gardens. A greenway in the lane behind the houses, including gardens, benches artwork and open spaces that link to a park to the north of the site created an intentional opportunity to bring residents together for social interaction and community gathering. As well, the gardens were constructed using recycled bricks and lumber, which were salvaged by area residents.

A pond located in the lane captures stormwater. Four of the site's parking stalls are reserved for the Co-operative Auto Network with whom the Mole Hill Community Housing Society has established a formal partnership, and the number of parking stalls in the lane were reduced from over 100 to 28. The project also provides 168 bicycle storage spaces.

Today, Mole Hill provides 170 units of subsidized and market rental housing for low-income singles, families, seniors and long-time residents. The project also included the construction of one new building, three daycares, gardens and greenway links, as well as the Dr. Peter Centre for Persons with HIV/AIDS; a day centre facility that includes 24 units of supported housing for people with HIV/AIDS.

Mole Hill stands as an example of leadership in social responsibility, sustainability in urban renewal, energy efficiency, and construction methodology.

Sustainable features of the project include:

- Preservation of period interiors
- Reuse of existing materials
- Storm water retention
- Landscape preservation
- Geothermal heating system
- Energy-efficient lighting and appliances
- Dedicated co-op parking stalls on site

The preservation of Mole Hill was done in partnership between the Mole Hill Community Housing Society, the City of Vancouver and BC Housing.

Awards:

2007 Smart Growth BC Project Award
2006 RAIC National Urban Design Award, Community Improvement Projects
2004 Vancouver Heritage Award of Honour

Consulting Team Client: Mole Hill Community Housing Society/BC Housing/City of Vancouver | Architect(s): Hotson Bakker Boniface Haden/S.R. McEwen, Associated Architects | Architect Team Members: Norm Hotson, Sean McEwen, Don Kasko, Sandra Korpan, Deryk Whitehead, Kate Gerson, Eileen Albang, Julian Wang, Stephane Laroye, Paul Kimczak, Peeroj Thakre, Ali Stiles, James Coverdale, Andreas Boschitz | Development Consultant: Terra Housing Consultants Ltd. | Structural: C.A. Boom Engineering Ltd. | Mechanical: Versacon Consultants Inc./Alexander Boome Consulting Engineering Ltd. | Electrical: Mahanti Chu Engineering Ltd. | Landscape: Durante Kreuk Ltd. Landscape Architects | Interiors: Hotson Bakker/S.R. McEwen, Associated Architects | Contractor/Construction Manager: Kindred Construction Ltd. | Building Envelope: BC Building Science & Engineering Ltd. | Civil: Webster Engineering Ltd. | Code: Locke MacKinnon Domingo Gibson & Associates Ltd. | Costing: Quoin Project and Cost Management Ltd. | Surveying: Hobbs Winter & MacDonald Surveys Ltd. | Photography: Norm Hotson/Raef Grohne

Nk'Mip Desert Cultural Centre

Architect: Bruce Haden, Principal
Hotson Bakker Boniface Haden architects + urbanistes, Vancouver, BC
www.hbbharc.com
www.nkmipdesert.com

The following description provided by Hotson Bakker Boniface Haden architects + urbanistes:

The Nk'Mip Desert Culture Centre is located in the most endangered landscape in Canada. Its design is a specific and sustainable response to the building's unique context - the spectacular Canadian desert found south of the Okanagan Valley in Osoyoos, British Columbia. This 1,600-acre parcel of land, belonging to the Osoyoos Indian Band is the largest intact remnant of this unique habitat in Canada.

The building features indoor and outdoor exhibits that honour the cultural history of the Band and are designed to be an extension of the remarkable site. The desert landscape flows over the building's green roof and is held back by the largest rammed-earth wall in North America. The partially underground building is sited specifically to focus the visitor's eye away from the encroaching development of Osoyoos, with the height of the wall set to create a layered view of the desert, receding to the riparian landscape and the mountains in the distance. The building is also intended to challenge the fake adobe building stylization that is becoming more common in the South Okanagan.

The extreme climate made sustainable design a particular challenge, however, this challenge posed great opportunity for true innovation. Hot, dry summers and cool, dry winters see average temperatures ranging from -18° to +33° and often reaching +40° in the summer season. The building's siting and orientation are the initial strategic undertakings toward sustainability; the partially buried structure mitigates the extremes in temperature and its orientation optimizes passive solar performance, with glazing minimized on the south and west sides. The project's ambitious approach towards sustainable design also includes the following features:

The largest rammed earth wall in North America

At 80m long, 5.5m high, and 600mm thick, this insulated wall (R33) stabilizes temperature variations. Constructed from local soils mixed with concrete and colour additives, it retains warmth in the winter, its substantial thermal mass cooling the building in the summer—much like the effect the surrounding earth has on a basement.

The wall gives the building exterior a unique material and poetic sensibility, with its graduated layers of earth shades evoking geological sedimentation within a distinctly contemporary architectural language. The wall has the appearance of being at once handmade and precise—its layers irregular, and its overall form sharp and geometrical, as well as the irregular horizontal strata of the compacted layers of earth used to construct the wall.

Rammed earth construction is a traditional building technique found most often in dry regions where wood is scarce. The modern version of this earth-based wall system combines two-250mm wythes of compacted sand and cement with 100mm of insulation sandwiched between. Successive layers of differently coloured local soils were placed into the 600mm wide formwork and a pneumatically powered tamper was used to compress each layer to about 50 percent of its untamped height. Sedimentary-like in appearance, the exposed surface acts as the finished wall, is extremely stable and doesn't off-gas toxic or greenhouse gas emissions. The technique results in a physically strong, durable wall with excellent thermal qualities—heating up slowly during the day in the hot Okanagan sun, and releasing its heat in the evening.

Sustainability of building process also extends to the involvement of band members on the wall's construction, contributing to the long-term ecological sustainability of the area, of the band, and providing an opportunity to evolve an authentically South Okanagan building technique (something of an antidote to the faux Santa Fe style that increasingly dominates the region).

This project created the opportunity for the Osoyoos Indian Band to develop unique, highly artisan construction skills as rammed earth contractors and a team of band members worked with the contractor on the fabrication of the wall.

Careful water use management

Water is precious in the desert, and a spare channel of water at the entrance along the rammed earth wall introduces this theme. Less visibly, demand on the site fed well is reduced by 40% by incorporating low-flow faucets, waterless urinals, and dual flush toilets.

The use of bluestain pine

A recent infestation of pine beetles in British Columbia has led to an excess of bluestain pine, which here is used in interior and exterior applications. Although bluestain pine is a local material not normally specified for finished building use, Nk'Mip is something of a demonstration project, showing how it can be used both inside and outdoors to celebrate

its unique visual qualities As its name suggests, the wood has a blue-tinted cast as though a blue wash has been applied, rather than the typical yellow colour more typical of pine. Although its inherent structural qualities are equivalent, the preferences of the powerful Japanese international market have historically influenced demand for yellow (white) pine.

A habitable green roof

This habitable landscaped roof reduces the building's visual imprint on the landscape, and allows a greater percentage of the desert landscape habitat to be re-established on the site (replanting uses indigenous species). The roof also provides further temperature stabilization and insulation.

Mechanical features

In-slab radiant cooling and heating in both ceiling and floor slabs create an even, comfortable environment that avoids blasts of air, noise and dust. Coupled with 100% outdoor air displacement ventilation, the system will result in savings of 30 to 50% over a forced air system.

Endangered species research

The building program includes facilities for the band's award-winning rattlesnake research project, as well as public viewing areas where visitors can see endangered rattlesnakes captured, tagged and microchipped for further study and protection.

Awards:

2008 Governor General's Medal
2008 Sustainable Architecture & Building Award
2007 Aboriginal Tourism Association of BC, Inspirational Leadership Award
2007 RAIC Award of Excellence, Innovation in Architecture
2007 AIBC Lieutenant Governor of British Columbia Medal
2007 Canadian Wood Council BC
2007 BC Ready-Mix Concrete Association, Awards for Excellence in Concrete Construction, Decorative Concrete Award

Consulting Team Client: Osoyoos Indian Band | Client Team: Charlotte Sanders, Margaret Holm, Brenda Baptiste, Chris Scott | Architecture Team: Hotson Bakker Boniface Haden architects + urbanistes | Principal-in-Charge: Bruce Haden | Project Architect: Brady Dunlop | Project Team: Norm Hotson, Stephanie Forsythe, Tina Hubert, Julie Bogdanowicz | Structural Engineering: Equilibrium Consulting Inc. | Principal-in-Charge: Eric Karsh | Project Engineer: Ivan Ursic | Design Engineer: Ben Heath | Project Team: Ann Tomlinson, Raymond Vitkauskas | Landscape Architecture: Phillips Farevaag Smallenberg | Principal-in-Charge: Chris Phillips | Project Team: Ken Larsson, Mike Enns, Blair Guppy | Mechanical Engineering: Cobalt Engineering | Partner-in-Charge: Ken Newbert | Project Manager: Tim Brown | Electrical Engineering: MCL Engineering | Principal-in-Charge: Marc Langdon | Code: Frank Mattia, LMDG Code Consultants | Exhibit Design: Aldrich Pears Associates | Partner-in-Charge: Phil Aldrich | Project Managers: Marc Belanger, Richard Lien | Project Team: Sheila Hill, Victor Chorobik, Megan Long, Val Kan | Acoustic: Douglas Kennedy, BKL Consulting | Theatre Design: Douglas Welch Design | Principal-in-Charge: Douglas Welch | Project Team: Paul Hodson | Theatre Electrical: Acumen Consulting Engineers | Project Manager: Garry Musgrave, Philbert Ang | Live Displays: Harry Parsons, Bufo Incorporated | Retail: Natalie Tan, Retail Excellence | General Contractor: Larry Kenyon, Greyback Construction | Project Manager: Craig Donoghue | Site Superintendent: Ray Eichberger, Armin Helbling | Photography: Nic Lehoux Photography

Salix Straw Bale Home

Architect: Henry Yorke Mann
Henry Yorke Mann Architect, Oliver, BC
www.henryyorkemann.com

From the architect's website: www.henryyorkemann.com/salix.htm

"Salix" is a "symbol of the changeable human spirit and immortality" as well as a species willow native to the site.

This 1500 ft. sq. two-bedroom home on 10 acres of dry highland desert country, often endangered by the potential of wild fires, required serious fireproof planning. The resulting design therefore has plastered straw bale walls, well documented for their fire proof ratings, concrete columns, a metal roof and metal window frames.

Construction sequencing was an important factor in developing the overall design concept. Once the basic concrete foundation was complete, a “family” or series of concrete support columns were poured to support the roof framing over which was laid the metal roof. This allowed next, the straw bales to be laid in dry conditions. As one can see from the floor plan this also allowed us to free form the walls as they wove in and out of the supporting concrete columns, no interior stud walls are used, rather the integrity of the straw bale walls was maintained throughout.

Heating is provided by an under the floor radiant system, as well an efficient wood stove situated in the center of the great room, fueled by ‘standing dead’ wood from the site and adjacent crown forest. Two ceiling fans dissipate the warmed air from the height of the ceiling vault, as well the concrete block mass back of the stove acts as a passive heat sink. Straw bale walls have very high insulation values, the window glazing is double with low e film and the roof has more than the standard insulation.

Summer time cooling is maintained by a light-coloured metal roof, (which is separated from the insulated roof by a screened circulating air space), deep roof over hangs, and open planning with screened opening windows plus augmentation of air movement by the ceiling fans.

This project reflects continuing commitment of our firm to creating sustainable and timeless architecture, buildings that are sensible and related to the site and the owners, buildings that are true to the nature of materials. Too many straw bale homes are just another unimaginative box built of straw bales. To a large degree we implement what we call “common sense green” using local labour (the crew camped on the site, with the owners working alongside) and using locally sourced materials. This minimizes the use of fossil fuels in transport. Natural materials and techniques are given preference over industrial materials and technologies, such that we produce a natural breathing building.

This home has the desired “centered repose” and the potential to add layers of significance to the life patterns of the owners Dwayne Hamm and Katherine MacNeill.

Consulting Team Architect: Henry Yorke Mann Architect | Structural Engineer: Hillside Engineering | Builder: Ditmars Construction | Straw Bale Sub Contractor: Sustainable Works | Photographer: Stuart Bish Photography

Solar Decathlon / North House

Architect: Team North
School of Interactive Arts & Technology
Simon Fraser University, Surrey, BC
www.team-north.com

From Simon Fraser University website: www.siat.sfu.ca/research/projects/55/

Students and faculty from Simon Fraser University’s School of Interactive Arts and Technology (SIAT) join with colleagues from the University of Waterloo and Ryerson University to design a high-tech, solar-powered house. The house will join others on The Mall in Washington, DC, as part of the US Department of Energy’s Solar Decathlon.

The building, NORTH HOUSE, will be entered in the 2009 Solar Decathlon, where it will compete against houses designed by 19 other North American universities.

Each of the three universities brings something unique to the project. Waterloo is leading the project and concentrating on off-grid housing and responsive structure and "skin", Ryerson will contribute energy modeling and analysis, while SFU will develop an “adaptive living interface” that allows the house’s occupants to adjust energy settings easily through touch controls built into the walls or remotely via cellphone and computer. Reflecting its strengths in design, SIAT will create publicity materials, including a website, interpretative signage and a graphic identity for the project.

The U.S. Department of Energy and the National Renewable Energy Laboratory are using the Decathlon to encourage the broad adoption of sun-powered homes. The entrants will be presented to the general public in a “solar village” outside the Smithsonian Institution in Oct 2009. Team North, as the SFU/Waterloo/Ryerson co-operative is called, hopes that NORTH HOUSE will then be displayed at the 2010 Winter Olympics in Vancouver.

Preface from North House Proposal: www.morethangreen.org/northhouse/

North House is a small solar house designed for our northern land. Its aims are to show ideas, to demonstrate their realization, and to persuade us that we can have both sustainability and quality of life. Three universities, ten disciplines and over one hundred students and faculty will create the house. We will all learn from the project. Some of the learning

will be research – knowledge new to us all. Some will be education, as faculty and students learn how to work together to create and realize a great design. Some will be community-based, as we show the house to the world. Increasingly such complex team-based projects are needed to connect ideas to innovation, and to focus new knowledge where it is needed the most. Effective teams are not made overnight. It takes extended effort to build both the capability and trust needed for success. The Canadian Design Research Network (CDRN) is proud of its role in fostering the collaborations that have become Team North.

Consulting Team Architecture: *University of Waterloo, School of Architecture;* Philip Beesley, Advisor; Geoffrey Thün, Team Lead; Kathy Velikov; Lauren Barhydt, Team Coordinator; Andrew Haydon; Natalie Jackson; Farid Noufaily; Matt Peddie; Matt Storus; Dr. John Straube, Advisor; Hayley Isaacs; Eric Bury; Jonathan Gammell; Kirsten Robinson; Chloe Doesburg; Jennifer Janzen; Chris Black; *Ryerson University, Department of Architecture Science;* Dr. Mark Gorgolewski, Advisor; Joginder (Joe) Dhanjal; Roman Pevcevicius; Neil White; Robert Coelho; Anna Cuciureanu; Mila Aleksic; Miljana Horvat; Andrew White; Adam Smith | Engineering: *University of Waterloo, School of Mechanical and Mechatronics Engineering;* Dr. Michael Collins, Advisor; Dr. John Wright, Advisor; Rob Gorbet; Ivan Lee; Bart Lomanowski; Brittany Hanam; Andrew Marston; Kyle Anders; Mike McWilliam; Sebastian Brideau; *Ryerson University, Department of Mechanical Engineering;* Dr. Alan Fung, Advisor; Dr. Hessam Taherian, Co-Advisor; Humphrey Tse; Farzin Rad; Omar Siddique; Damian Rogers; Dahai Zhang; Toktam Saeid | Interactive Systems: *Simon Fraser University, School of Interactive Arts & Technology;* Ron Wakkary, Advisor; Nathan Cheng; Milena Droumeva; Jin Fan; Yin Ha; Malahat Hosseini; Simon Kwok; Charles Law; Andrew Liang; Kevin Muise; Roham Sheikholeslami; Nathan Waddington; Vincent Wong; Dr. Robert Woodbury, Advisor | Communications: *Simon Fraser University, School of Interactive Arts & Technology;* Davis Marques; Paula Solanoy | Business: *Simon Fraser University, Faculty of Business Administration;* Carla Culos; Min Soo Kim; Hon Lam

TELUS House

Architect: Peter Busby, Managing Director
Jim Huffman, Design Principal
Busby Perkins+Will, Vancouver, BC
www.busby.ca

From Busby Perkins+Will website www.busby.ca/clients/TELUS_House/index.htm

The TELUS House project was conceived to satisfy a number of internal business needs and, in doing so, revitalized an existing complex and created a powerful corporate presence for the company in downtown Vancouver. The project consisted of two major phases: an extensive renovation of the former building into office and retail space, and the creation of a feature atrium for team members that serves as a seismic upgrade for the building.

The first phase of TELUS House included extensive interior and exterior renovations of approximately 12,075 sm of office and equipment space. Instead of demolishing the existing nine-storey tower, TELUS and the design team devised an alternative solution: to recycle the building into offices and, in turn, save landfill, energy, resources, and establish the telecommunications company as a leader in environmental sustainability. The exterior revitalization was realized as an open, layered and sophisticated new skin enveloping the old building shell. A double-glazed, fritted and frameless glazing system with operable windows is suspended from the existing building face, providing opportunities for a highly effective natural ventilation system. The second skin created the first double-wall/triple-skinned green building solution in Canada, while adhering to TELUS ultra-green mandate.

By not demolishing the existing building in favour of new construction, 16,000 tonnes of landfill and 15,600 tonnes of greenhouse gas (GHG) emissions were saved. Yearly energy consumption has been reduced by 45-58% by using waste heat from an adjacent building, and efficient building systems operations will save an additional 39,000 tonnes of GHG emissions over a 75-year building lifespan. In recognition of its innovations in environmental performance, the TELUS House revitalization was one out of three projects selected to represent Canada at the Green Building Challenge in Maastricht, Netherlands.

Following the successful revitalization, TELUS Corporation proceeded with the second phase of the project a new feature space and seismic upgrade. The TELUS House atrium was designed and constructed, utilizing a unique and elegant steel solution, which has resulted in increased structural integrity of the complex and substantially greater access to natural light for office users. The interior space also features two highly refined pedestrian bridges and a dramatic folded-plate steel stairway.

In addition to its innovations in sustainable design, TELUS House offered the design team great opportunities to achieve a high level of refinement. The second skin that envelops the exterior of the existing building's shell proved both visually striking and comprehensive in achieving a high level environmental performance; and the elegant steel work and detailing in the atrium provides an original and expressive aesthetic in a visible communal space.

From Canadian Architect's website:
www.canadianarchitect.com/issues/ISarticle.asp?id=83716&story_id=&issue=05022008&PC=

This year's top honour, the Lieutenant-Governor of British Columbia Award in Architecture - Medal, went to: TELUS House in Vancouver by Busby Perkins+Will Architects, the culmination of a two-phase project carried out over seven years. It was originally intended to revitalize the clients existing complex, and reposition its corporate identity at the same time. The client's mandate – "reuse, recycle, go green" – was taken to heart. As a result, TELUS House has raised the bar for sustainable design practices. In addition to being visually striking, its unique and highly effective natural ventilation system represents the first double-wall, triple skinned "green" building solution in the country. The Phase Two atrium also pushed the envelope, utilizing a unique and elegant steel solution that boosted structural integrity while opening the inner space to an abundance of natural light.

Juror comments Lieutenant-Governor of BC Award in Architecture, 2008:

> "The use of the existing building and its innovation is unique. Its architecture lies outside our conventional ideas."
>
> "This is excellence. It brings value to the client at so many levels. Nobody else was doing this kind of work at the time. This is difficult to do."
>
> "On every level, it is thought out and resolved. It's very well done."

Additional Awards:

2008: Consulting Engineers of BC, Award of Excellence for Building Engineering
2008: Canadian Institute of Steel Construction (CISC), BC Region Steel Design Award of Excellence, Architectural Category
2002: Canadian Glass Magazine, Great Canadian Curtainwall Contest, First Place
2001: What Makes it Green? AIA
2001: International Design Resource Award, First Place
2000: National Energy Efficiency Award
2000: International Green Building Challenge
2000: Consulting Engineers of BC, Award of Excellence

Consulting Team Architect: Busby Perkins+Will | Industrial Design: Busby Perkins+ Will | Structural Design: Read Jones Christoffersen | Mechanical Engineer: Stantec Consulting | Electrical Engineer: Reid Crowther & Partners (Phase 1), Schenke Bawol (Phase 2) | Cost Consultant: James Bush & Associates | Envelope Consultant: Reid Jones Christoffersen | Code Consultant: Pioneer Consultants | Audio Visual: Conceptron | Acoustics: BKL | Landscape Architect: Cornelia Oberlander | Coordinating Architect for Seismic Upgrade: Musson Cattell Mackey | Environmental: PHH Environmental | Interior Design: Busby Perkins+Will, Smart Design Group/Gowling & Gibb | Builder: Dominion Construction

Vancouver Convention Centre Expansion

Architect: Bruce Hemstock
PWL Partnership Landscape Architects, Vancouver, BC
www.pwlpartnership.com

Excerpt From Vancouver Convention Centre's website: www.vccep.bc.ca/theproject/overview.html

Overview

Opened on July 4, 1987, the existing Vancouver Convention and Exhibition Centre (VCEC) got its start as the Canada Pavilion during Expo 86.

Within 10 years, the convention centre was at capacity with an obvious need for additional space, particularly as Vancouver became known as one of North America 's leading meeting and convention destinations.

In fact, in 2003, some $100 million in delegate spending was lost because Vancouver did not have enough meeting space to accommodate groups wishing to hold conventions in the city.

The expansion of the convention centre followed a review by the Convention Centre Task Force, made up of members of the business community. The task force needed to make a thorough business and marketing case for public funding before the Province decided to proceed with the project on the land and water site adjacent to the west side of Canada Place.

The project is managed by Vancouver Convention Centre Expansion Project, which became a Division of BC Pavilion Corporation (PavCo) on April 1, 2008, following the amalgamation of Vancouver Convention Centre Project Ltd. and BC Pavilion Corporation. PavCo is wholly-owned by the Province of British Columbia. The 1.1 million sq ft project will triple the convention centre's existing capacity and help generate an additional $107 million annually in delegate spending.

The expansion will increase the number of delegate days each year from the current 150,000 to nearly 370,000 within the first five years after opening. On average, a delegate will spend about $350 per day during their visit to Vancouver, with about one-third of convention delegates traveling to other parts of the province as part of their stay.

Built over land and water on some 1,000 piles, the expansion will be completed in Spring 2009. In 2010, the VCEC will be home of the 2010 Olympic Games media and broadcast centres.

In order to ensure that the expansion and existing facility are fully integrated, a glass-walled connector will link the facilities, providing delegates with exceptional harbour views as well as a seamless transition.

Featuring floor-to-ceiling glass throughout the expansion, the project will also include a six-acre living roof, one of the largest of its kind in the world. This unique ecosystem is one of many environmental innovations included in the expansion.

2006 Press release re living roof (from Convention Centre's website):
www.vccep.bc.ca/newsreleases/pdf/2006/Surrey%20Firm%20to%20Grow%20Living%20Roof%20Mar21-06.pdf

Surrey Firm to Grow Convention Centre Expansion's Living Roof

Vancouver (March 21, 2006): Holland Landscapers of Surrey has been awarded a plant propagation contract valued at $700,000 for the 2.4 hectare (six acre) Vancouver Convention Centre Expansion Project (VCCEP) living roof that will cap the expansion when it is completed in 2008. "Work has begun to collect the seeds and bulbs needed to plant nearly 400,000 plants and wild grasses that will create this new downtown urban oasis," said Bruce Hemstock of PWL Partnership Ltd., the landscape architects for the living roof. Hemstock has been overseeing a series of test plots on Port of Vancouver land east of the VCCEP site for more than a year, to test which species will best suit the unusual waterfront environment atop the expansion. The sustainable design of the living roof includes drainage and water recovery systems that will collect rainwater to be used for irrigation. "The convention centre expansion not only breaks new ground in terms of design, it will also be a showcase for sustainability with such things as the living roof," said Olga Ilich, Minister of Tourism, Sport and the Arts and minister responsible for the expansion of the Vancouver Convention & Exhibition Centre. "It is all the more gratifying when a BC firm demonstrates the ability to provide the expertise and creativity required for leading edge projects like this." "There's no doubt this is an unusual project since we will be selecting only plants that make their home here on the west coast and we'll need enough of them to cover an area as big as 15 hockey rinks," said Hemstock.

The Whistler Sliding Centre

Architect: Stantec, Vancouver, BC
www.stantec.com

Client: VANOC
www.vancouver2010.com/en
www.whistlerslidingcentre.com

From the Vancouver 2010 Olympic and Paralympic Winter Games website:
www.vancouver2010.com/en/WinterGames/2010GamesVenues/Competition/WSC

Location: Blackcomb Mountain
Distance from Whistler Olympic and Paralympic Village: 14 km

Venue Capacity: 12,000
Elevation: 935 – 785

Venue Description
Located on Blackcomb Mountain in the resort of Whistler, the new sliding track is integrated into Whistler's long-term resort development plans. The Whistler Sliding Centre will showcase sliding sports to the public. Its location near several of the resort's world-class hotels will attract many tourists, providing a sustainable revenue stream that will support the Centre's long-term operations.

Construction Update
The project features construction of a new 1,450 m competitive combined bobsleigh, luge and skeleton sliding track, refrigeration facilities, support buildings and an access road. Construction began in June 2005 and the facility became operational in December 2007. The Whistler Sliding Centre will continue to fine tune and prepare for the Olympic Winter Games in February 2010, while welcoming the public during most of its operations days and events.

Post-Games Use
The Whistler Sliding Centre will be operated under the direction of the Whistler Legacy Society, supported by an endowment trust established by the federal and provincial governments as part of their 2010 Winter Games venues investment. This high-performance competition training centre will introduce sliding sports to the area's many visitors.

From the Vancouver 2010 Winter Games website:
www.vancouver2010.com/en/Sustainability/EnvironmentalStewardship/BiodiversityAndHabitat/MakingTheWhistlerSlidingCentreMoreSustainable

Making the Sliding Centre More Sustainable

The Whistler Sliding Centre will be home to some of the most thrilling competitions of the 2010 Winter Games—bobsleigh, luge and skeleton. All of these take place on a 1,450 m, outdoor, refrigerated cement track. The challenge: how to make the venue sustainable?

Admittedly, that had us scratching our heads. However, we came up with a number of solutions to lessen the environmental impact of The Whistler Sliding Centre.

We began with smart site selection. The sliding centre is located at a pre-existing alpine ski resort. Within this area, the particular site was selected and designed to minimize vegetation clearing and reduce its footprint. Before construction began, the site underwent a federal EA review. Any adverse impacts were evaluated and mitigated under Environmental Management Plans.

Refrigerating the track has significant environmental impacts related to energy consumption. To help address this, VANOC is targeting LEED Silver certification for the refrigeration plant building. The plant and track utilize an ammonia refrigeration system. Ammonia is among the most energy efficient refrigeration substances and produces no chlorofluorocarbons, which contribute to ozone-layer depletion.

Other energy saving initiatives at this venue include tree retention throughout the site, track shading and a weather protection system. We also painted the track white to minimize heat absorption. In addition to reusing vegetation debris (such as waste wood that was chipped and composted), the waste heat from the track's refrigeration system will be captured and reused to heat the refrigeration plant building and the adjacent Track Lodge building.

More sustainability facts about this venue and others are available at www.vancouver2010.com/sustainability.