

HERITAGE
CANADA
FOUNDATION



LA FONDATION
HÉRITAGE
CANADA

Heritage Canada Foundation
ANNUAL CONFERENCE 2005



PROCEEDINGS
HERITAGE AND SUSTAINABILITY:
Canadian Communities and Kyoto

September 15, 16, 17, 2005
Regina, Saskatchewan

The Heritage Canada Foundation acknowledges
the generous support of

Saskatchewan Environment



Great Excursions Co., Regina

Saskatchewan Heritage Foundation



Heritage Regina



Regina's Old Warehouse District



5 Blackburn Avenue
Ottawa, ON, K1N 8A2
Telephone: (613) 237-1066
Fax: (613) 237-5987
E-mail: heritagecanada@heritagecanada.org
Website: www.heritagecanada.org

HERITAGE
CANADA
FOUNDATION



LA FONDATION
HÉRITAGE
CANADA

Heritage Canada Foundation
ANNUAL CONFERENCE 2005



PROCEEDINGS
HERITAGE AND SUSTAINABILITY:
Canadian Communities and Kyoto

September 15, 16, 17, 2005
Regina, Saskatchewan

PUBLISHED BY:
The Heritage Canada Foundation
5 Blackburn Avenue
Ottawa, ON K1N 8A2 Canada

Telephone: (613) 237-1066
Fax: (613) 237-5987

E-mail: heritagecanada@heritagecanada.org
Website: www.heritagecanada.org

ISBN: 0-88814-214-5
© 2006 The Heritage Canada Foundation

PREPARED BY:
The Conference Publishers

CONFERENCE PLANNING:
Douglas Franklin
Maggie Villeneuve

EDITOR:
Carolyn Quinn

The views expressed in the summaries of
the conference papers herein are not necessarily
those of The Heritage Canada Foundation.



Table of Contents

Introduction	3
Thursday September 15	4
Opening Presentation: A Saskatchewan Heritage Celebration <i>Bernard Flaman, Saskatchewan Culture, Youth and Recreation</i>	4
Friday September 16	7
Welcome	7
Keynote Address: <i>Colin Jackson, Member, Prime Minister's External Advisory Committee on Cities and Communities</i>	7
Session 1: Ecological Building <i>Dr. Mark Gorgolewski, Associate Professor, Department of Architectural Science, Ryerson University</i>	9
Case Study 1: Retrofitting Heritage for Energy Efficiency: The Citadel Project <i>Rodney C. McDonald, Centre for Indigenous Environmental Resources</i>	10
Provincial Minister's Luncheon: <i>The Honourable David Forbes, Minister of the Environment, Saskatchewan</i>	12
Session 2: Sustainable Cities <i>Bohdan (Bob) Onyschuk, Q.C., Chair of Canadian Urban Institute</i>	14
Case Study 2: Interpreting Built and Natural Heritage Together <i>David Stonehouse, Evergreen</i>	16
Saturday September 17	18
Technical Demonstrations: Retrofitting Heritage Buildings for Energy Efficiency <i>Terry White, Manager of Municipal Program Development, Saskatchewan Office of Energy Conservation</i>	18
Case study 1: Conversion of the Riverside Silk Mill to the University of Waterloo School of Architecture, Cambridge, Ontario <i>Rick Haldenby, School of Architecture, University of Waterloo</i>	20
Case Study 2: Sustainable Development using Municipal Heritage Incentives <i>Erik Hanson, Heritage Preservation Officer, Peterborough, Ontario</i>	21
Banquet: Heritage and Sustainability Lessons Learned in America <i>Donovan Rypkema, Place Economics, Washington, D.C.</i>	24

Notes



Introduction

Heritage and Sustainability: Canadian Communities and Kyoto

There was much talk about "sustainability" in Regina, Saskatchewan during the third week of September. The discussion was in relation to the Heritage Canada Foundation's (HCF) annual conference, *Heritage Sustainability: Canadian Communities and Kyoto*, held in the Prairie city from the 15th to 17th.

The Regency Ballroom of the historic Hotel Saskatchewan was a fitting gathering place for our opening guest speaker. Bernie Flaman, heritage architect with Saskatchewan Culture, Youth and Recreation, kicked off the event with a presentation that captured some of the province's finest architectural achievements.

Colin Jackson, member of the Prime Minister's External Advisory Committee on Cities and Communities (EACCC), placed the issue of sustainability within the context of EACCC's national agenda focusing on a long-term economic, cultural and environmental vision. He urged the heritage community to continue to make its case that the loss of heritage buildings runs counter to developing healthy, integrated, sustainable communities.

Dr. Mark Gorgolewski of the Department of Architectural Science at Ryerson University focused on the huge impact buildings have on the environment. In Canada, construction accounts for 50 percent of natural resource use and 52 percent of water consumption. The production and transportation of building materials also creates volumes of greenhouse gas. In addition, Canadian construction and demolition creates 11 million tonnes of waste a year. Dr Gorgolewski stressed that building waste now makes up about 20 percent of landfill dump sites while the rate at which we are using new materials for construction is unsustainable.

The full and varied conference program included an engaging session on the ecological benefits of reusing historic building assets and redeveloping brownfield sites. Delegates marvelled at some of the projects presented in the case studies—from retrofitting Winnipeg's Citadel Building to create the greenest heritage structure in Canada, to developing a sustainable community program for the site of the former Don Valley Brick Works in Toronto.

Sustainable development is not only about environmental sustainability it is also about economic, social and cultural sustainability. In his closing presentation Donovan Rypkema of Place Economics in Washington, D.C., reminded delegates that economic globalization can have widespread positive impacts but cultural globalization ultimately diminishes us all. "The city tells its own past, transfers its own memory, largely through the fabric of the built environment," he said. "Historic buildings are the physical manifestation of memory—and it is memory that makes places significant." In conclusion, he stressed that the adaptive reuse of heritage buildings brings positive economic benefits while simultaneously mitigating the negative impacts of cultural globalization.

HCF's annual conference also hosted a series of walking tours of Regina—including the historic Warehouse District—and an all-day field trip to Claybank Brick Plant National Historic Site and the historic town of Moose Jaw.

HCF would like to thank all those people who contributed to the insightful discussions that helped to shape the conference program and to those who willingly shared their knowledge and their passion over the two days of sessions and tours in Regina.

Thursday September 15

A Saskatchewan Heritage Celebration

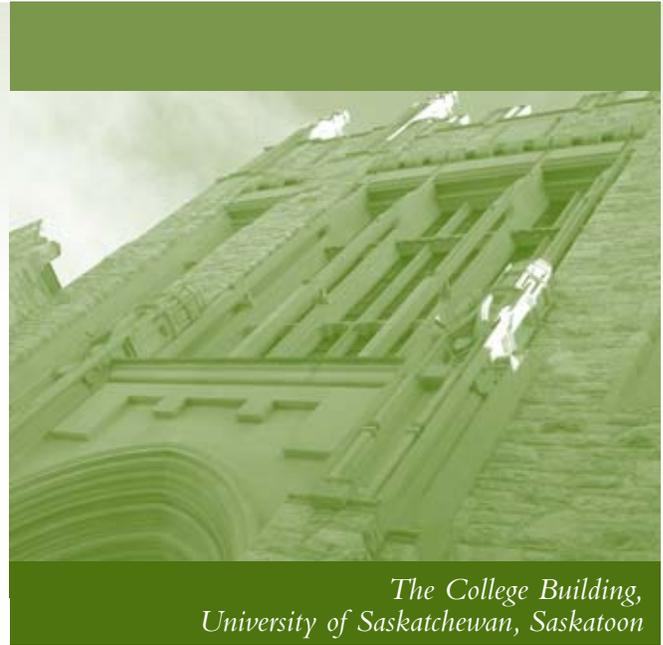
*Bernard Flaman, Heritage Architect,
Saskatchewan Culture, Youth and Recreation*

Bernard Flaman introduced his presentation as a celebration of some of Saskatchewan's finest architectural achievements, focusing on the development of Saskatchewan's built environment. The federal-provincial Historic Places Initiative has been a major influence in revitalizing government interest and commitment to heritage conservation and in fostering a values-based approach to heritage assessment. *The Standards and Guidelines for the Conservation of Historic Places in Canada* is a direct result of this Initiative. One of Mr. Flaman's roles is to provide recommendations on the regulation and conservation of the built heritage component of Saskatchewan's 43 provincially designated heritage properties.

Mr. Flaman intends to build on the work of the Historic Places Initiative and help identify the stylistic threads specific to Saskatchewan architecture, to extend the time-frame of heritage designation into the post Second World War period, and to look at how heritage properties may fit into a future driven by considerations such as climate change and energy supply. Mr. Flaman's presentation was illustrated with projected images of sites and buildings.

A chronological approach is helpful in understanding the evolution of architecture in Saskatchewan. Mr. Flaman assigned titles to milestone periods in the development of the province: First Nations settlement, European and American pioneer settlement, building the province, Saskatchewan and the modern world, and global village/global soul. Shifts in architectural style were caused by, or concurrent with, milestones—for example, the coming of the railway in 1882, the formation of the province in 1905, the Great Depression of the 1930s.

The absence of a university-level school of architecture has influenced Saskatchewan architecture.



*The College Building,
University of Saskatchewan, Saskatoon*

Ken LaPointe

However, it is not necessarily a negative influence, and has likely resulted in some exceptional, nationally significant buildings in Saskatchewan by architects from elsewhere.

Reviewing Saskatchewan architecture in the various milestone periods, Mr. Flaman noted that First Nations did not have a tradition of permanent construction. However, there is evidence of semi-permanent log structures and stone constructions such as circles, effigies, and mounds. Wanuskewin, near Saskatoon, preserves an example of a First Nations settlement with subterranean dwellings.

Fur traders and settlers brought with them building traditions from their homelands, but adapted them to locally available construction materials. An example is Holy Trinity Anglican Church at Stanley Mission. Constructed between 1854 and 1860, it is the oldest standing building in the province. Although it displays elements of the Gothic Revival style, attributed to Augustus Pugin, it was constructed using local heavy timbers and augmented with stained glass windows, locks, and hinges imported from England. The 10-year period between 1873 and 1882 represents the decline of the First Nations as their land base was taken over by European settlers. The major pre-railway settlements of the time—Battleford, Prince Albert, and Fort

Qu'Appelle—were comprised mainly of modest wood-frame, log, or stone buildings.

The flow of European settlers accelerated quickly with the arrival of the railway in 1882. One significant result was the development of town sites at approximately 13 km intervals along the railway, an interval based on the distance a horse-drawn wagon could reasonably travel in one day. “Cribbed” wood grain elevators quickly sprung up at these town sites in the 1880s—one of the first modern building types on the Prairies. Fleming is home to the oldest standing grain elevator in Canada, dating from 1895. It is a first-phase hipped-roof design. The more familiar “sloped shoulder” design appeared in the early 1900s and signalled the beginning of the expansion phase of the grain handling system. According to a 1999 inventory, there were approximately 3,300 grain elevators in Saskatchewan in 1930 and that number had dwindled to an estimated 800 by the end of the 1990s. There are no nationally or provincially designated heritage crib construction grain elevators in the province, but the Fleming elevator will be considered shortly. Seven other grain elevators (Val Marie, Hepburn, Parkside, Prongua, Truax, and two at Horizon) have been designated as Municipal Heritage Property, and the Esterhazy Flour Mill and elevator dating from 1906 was recently designated a Provincial Heritage Property.

Presenting the McNaughton Store in Moosomin as another example of architecture from the territorial period, Mr. Flaman noted it was built in two phases between 1886 and 1890. The first phase was in the French Second Empire style, characterized by a mansard roof, while the second phase was a more typical retail storefront style. The 1897 Hudson's Bay store in Fort Qu'Appelle used a similar storefront style, and both buildings used “more prestigious” machine-made imported brick on the front, and local field-stone on the sides and back. Modern-day builders might take an opposite view of the use of such materials. Other provincially designated sites from this era include Government

House (1877) and the Land Registry Building at Battleford, and Government House and the Territorial Administration Building at Regina.

The formation of the Province of Saskatchewan in 1905 produced unbounded optimism for the future and resulted in a series of extraordinary buildings—for example, the Provincial Legislature in Regina (combining French Classicism with elements of English Baroque), and the University of Saskatchewan in Saskatoon (Collegiate Gothic style) designed by Montréal architects Brown and Vallanee. The Regina architectural firm of Storey and Van Egmond were the most prolific designers of buildings in the early days of Saskatchewan. Gothic, French Classicism, Georgian Classicism, and American Colonial were the popular styles of the time. Between 1915 and 1929 provincial architect Maurice Sharon designed many courthouses and hospitals in the American Colonial style. The Claybank Brick Plant represents an intact industrial site from this period, but the Great Depression halted institutional building activity and it did not resume until after the Second World War. The commercial and industrial/military projects that were completed during this period (radio stations, airports, service stations, factories, airplane hangars, military facilities) showed a new trend of streamlined Moderne and European Modernism styles—for example, the Mainline Ford building in Indian Head, the Symons oil can factory in Rocanville, the CBC transmitter building at Watrous, and the first Regina airport.

Since 1945, architectural developments in Saskatchewan have paralleled those in other parts of Canada and the world. Architects trained elsewhere tend to bring with them an international perspective that they often combine with a keen sense for materials, especially brick and stone, and a particular way of engaging the Prairie terrain. In particular, the 1960 to 1980 work of architects Joseph Pettick, Clifford Weins, and the firm of Holiday-Scott, Paine designed buildings in the Modernist style that combined international influences with local materials.

Post Modernism, where historical forms are rendered in modern materials, and Revisionist Modernism, where a humanizing influence is brought to modernism, are two international developments that strongly influence Saskatchewan architecture—for example, the Saskatchewan Provincial Court building in Prince Albert, the T-Rex Discovery Centre in Eastend, the synchrotron facility at the University of Saskatchewan in Saskatoon, and the First Nations University of Canada in Regina.

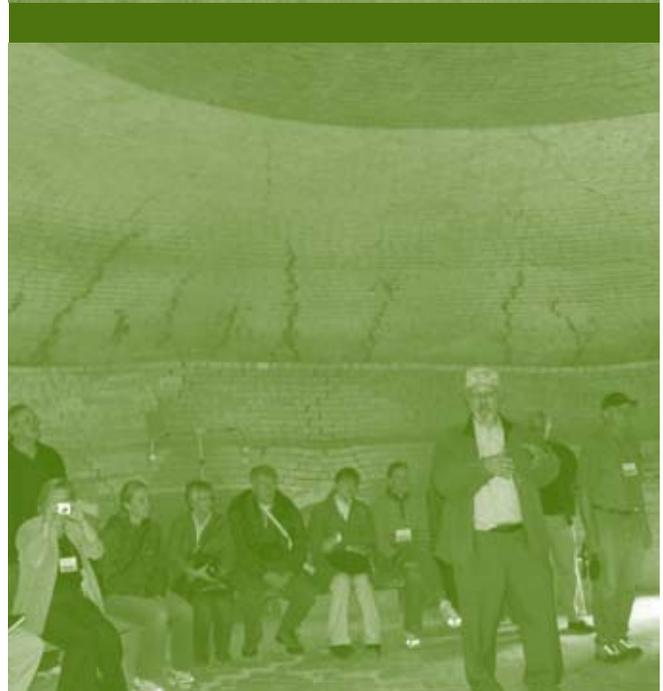
Overall, Saskatchewan could be viewed as a Modernist project, based on the ideas of mechanized agriculture, railway transportation, and control of the natural environment. In particular, the prototypical Prairie buildings such as grain elevators and train stations are Modernist while the courthouse designs by Maurice Sharon show the development of another prototypical Saskatchewan building style. Saskatchewan's best buildings are often clad in brick and stone, indicating a connection to the past use of stone by First Nations people and early settlers.

Reviewing some of the work undertaken to restore buildings on the University of Saskatchewan campus at Saskatoon, Mr. Flaman noted the salvage and reuse of building materials like slate shingles and field stone cladding. This practise is consistent with the sustainability philosophy of using high quality materials that are repairable, rather than low cost materials that are replaceable.

The downtown core of cities like Regina, Montréal, Ottawa, Toronto, and Vancouver were all originally designed as people-friendly living spaces, with all amenities and services within easy walking distance for residents. It is not a new experimental concept to build cities in this way, and smaller cities still have to catch up and possibly benefit in the future from those who find the larger centres too expensive or too difficult to live in.



Ken LaPointe



Ken LaPointe

*Conference delegates visiting the Claybank
Brick Plant National Historic Site.*



Friday September 16

Welcome

Michel Grenier, chair of the Heritage Canada Foundation Board of Governors, welcomed delegates, inviting them to take the opportunity of seeing the many fascinating heritage buildings in Regina. Donald Kerr, Board Governor from Saskatchewan, reminded participants that people are as important as the buildings themselves and that the heritage-sustainability balance is a good topic for Saskatchewan.

Keynote Address

Colin Jackson, Member, Prime Minister's External Advisory Committee on Cities and Communities

The External Advisory Committee on Cities and Communities (EACCC) sees Canada as a laboratory for caring, creative, connected communities, Colin Jackson told delegates. The efforts of the heritage community are consistent with a larger trend toward community sustainability as the cornerstone for a wide variety of strategic objectives. Federally, the New Deal for Cities and Communities is at the centre of the government's policy agenda.

Sustainability conjures up visions of recycling programs and bus lanes, of wind turbines and wetlands projects. The bigger picture is far richer, more complicated and diverse. That complexity has been evident in the response to Hurricane Katrina.

The effort to rebuild New Orleans must start from a commitment to protect and restore the historic French Quarter. Reports from the area touch on the environmental challenges of restoring damaged wetlands and reclaiming a gigantic brownfield site. They raise issues of social inclusion and community solidarity, and enormous economic fallout. Every piece of this enormously complicated jigsaw puzzle is tied back to sustainability.

In Canada, the Prime Minister asked the EACCC to consider the sustainability related issues facing communities large and small, and to develop creative solutions. Its ultimate purpose is to position Canada as a world leader in developing vibrant, creative, inclusive, prosperous, and sustainable communities. More specifically, its mandate includes the following:

- Develop a long-term vision of the role cities should play in sustaining Canada's quality of life.
- Advise the Prime Minister and the Minister of State on policies related to cities and communities.
- Act as a sounding board for the Prime Minister and the Minister of State as new issues arise.
- Bring a regional perspective to the national dialogue.

The committee began by articulating a 30-year vision for Canada's cities and communities as "sustainable places of exceptional beauty, neighbourliness, and prosperity, rich in ideas, confidence, diversity, creativity, and innovation, where all people are included economically, socially, and politically." It also identified the hopes and expectations "that Canada's cities and communities will be models of environmental, economic, social, and cultural sustainability." Further, their roles will include the following actions:

- Sustain vibrant economies where all people can realize their full potential.
- Minimize their ecological footprint.
- Attract and retain talented people and encourage creativity and entrepreneurship.
- Foster respect for one another, inclusiveness, kindness, and human dignity.
- Include new arrivals with grace and speed.
- Have buildings and public spaces that are beautiful and accessible.

- Build on their distinctive human, cultural, historical, and natural characteristics.
- Ensure a civil and peaceful society for all people.
- Be places where people take personal responsibility for the success of their community.

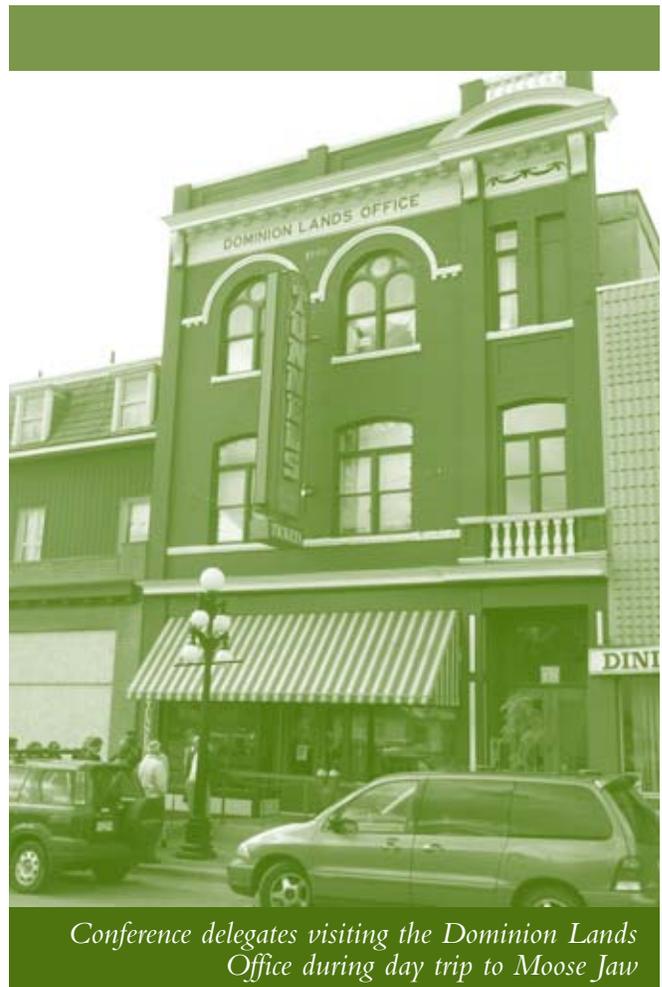
The committee deliberately uses a broad definition to emphasize cultural and historical distinctiveness, a deep respect for public buildings and spaces, and community development. Cultural considerations are key to sustainable communities. The committee has heard calls for a transition from a triple to a quadruple bottom line in community planning. It has seen research articulating the complex interplay between culture and the other three pillars of sustainability.

There is growing awareness of human capital as the driver of a sustainable society. Knowledge is replacing physical resources as the main driver of economic growth. Policy should be flexible to meet the needs and expectations of different types and sizes of communities. One size does not usually fit all in Canada.

The committee will tailor its recommendations to the needs of large cities, mid-sized municipalities, and rural and remote communities. Even within those categories are important distinctions that reflect differing history, culture, character, and priorities. That local distinctiveness is the basis for the sense of place that gives communities and their initiatives flavour, energy, and momentum. The New Deal supports and harnesses that strength within a national program that is flexible enough to accommodate local priorities.

Interdependence brings rural and urban communities together. Canada has a largely urban population and draws a substantial share of its gross domestic product from natural resources. Much of the wealth behind a financial services company in downtown Toronto might come from a BC forest company or a Saskatchewan potash mine.

Canada's gateway cities pride themselves on their ability to compete in the global knowledge economy. Those same qualities can help Canadians in smaller resource communities run farming, forestry, and mining operations that are smarter, more cost-effective, and more environmentally sustainable. Those communities, in turn, represent a market for the technology products and services generally associated with larger centres.



Conference delegates visiting the Dominion Lands Office during day trip to Moose Jaw

Ken LaPointe

The Prime Minister recently stated that “for far too long, municipal governments have been working off a 19th century blueprint for a 21st century economic reality.” To change that, the federal government is engaging municipalities in two areas. The first is a reliable, long-term funding mechanism giving

municipalities the ability to invest in their own success. The second is a special public transit fund that will pump \$800 million into local sustainability projects over the next two years.

The ultimate objective is to review and renew ways to build exemplary, caring communities. It is about learning a new way to inter-relate, so cities and communities have the resources and standing to become leaders along the road to sustainability. What is remarkable about the gas tax agreements is that all the key players have been in the conversation every step of the way.

Most important, the agreements commit everyone to working together to determine how the money will be spent and seek creative, collaborative ways of making Canada's cities and communities the greatest places in the world to live, work, learn, and play. This opens opportunities for the heritage community to lead, bringing knowledge, experience, and caring to bear.

The heritage sector has made a powerful case that the loss of heritage buildings runs counter to developing healthy, integrated, sustainable communities. Beyond economic factors, heritage organizations have emphasized the sense of continuity that helps communities retain pride of place, a building block for many economic and social benefits.

The EACCC's vision of sustainable cities and communities is deliberately broad. It will take shape over the next 30 years. By working together under the gas tax agreements, cities and communities will develop their capacity for long-term planning.

Mr. Jackson concluded that integrated community sustainability planning is one of the most important tools in building the new relationship and providing inspiration for communities. Sustainable change will not happen overnight. The challenges emerged over generations. Meaningful solutions will take time.

Session 1: Ecological Building

*Dr. Mark Gorgolewski, Associate Professor,
Department of Architectural Science,
Ryerson University*

Global material consumption doubles every 20 years, Mark Gorgolewski told participants. The developed world consumes over 80% of the world's fuel and material resources. It takes 20 kg of raw materials to produce one kg of bought goods. If the entire world population consumed at the rate of a typical European country, it would quickly run out of resources. The world is already running out of places to dispose of the vast waste created by the construction industry.

People spend 90% of their time indoors. Being in a building cut off from the natural world has physical, psychological, and spiritual impacts. Research shows people feel better and are healthier in buildings with stronger links to the outside world.

People are products of their built environment. Initially, they shape the buildings; later, the situation is reversed. People affect the design of buildings, which in turn have a huge impact on individuals, society, and culture. Buildings are not just another commodity; they are part of the longer-term culture and environment.

Buildings also have a huge impact on the environment. They use 40% of the world's energy, 50% of its fresh water, 24% of all harvested timber, and 65.2% of electricity. In Canada, construction accounts for 50% of natural resource use and 52% of water consumption. The production and transportation of building materials also creates a great deal of greenhouse gas.

The construction process itself is hugely damaging to the environment. Canadian construction and demolition creates 11 million tonnes of waste a year. Considering what goes into buildings, they might be regarded during demolition as assets for new

buildings rather than waste. Maximizing reuse, refurbishment, and recycling may soon become a necessity. The Worldwatch Institute reports that by 2030 many areas of the world will run out of raw building materials and begin to rely on recycling and mining landfills.

The cultural component of buildings is important. They provide a familiar backdrop for everyday activities. People want to keep buildings they are familiar and comfortable with. Stuart Brand speaks of “blue jeans buildings”—buildings that age honestly and elegantly with time. It is important to recognize that a building is not finished the day it is built. Rather, it grows from day one, evolving, developing, and improving with age. The buildings that last are those that accommodate significant change.

Buildings can become obsolete due to technical failure, trends in fashion and design, changing legislation, or simple economics. Most buildings today are made obsolete by economics or changing fashion. For the sake of sustainability, people should not try to push culture to change as quickly as fashion. It is better to strike a balance. The heritage movement can help guard against fashion driving change.

Some aspects of buildings themselves change more quickly than others. The space changes daily, while a space plan may last as long as 30 years. A building’s skin or exterior lasts about 20 years and its structure or load bearing elements last from 30 to 300. A building’s site or geographic setting is eternal.

A “long life, loose fit, low energy philosophy” will help design the buildings of today to become the heritage buildings of the future. Buildings that accommodate many uses over their lifespan will endure.

Reuse of existing buildings is an important factor in the Leadership in Energy and Environmental Design (LEED) Green Building Rating System. The system sets out voluntary standards for developing high performance, sustainable buildings. It looks at factors such as sustainable sites, materials and resources, water

Canadian construction and demolition creates 11 million tonnes of waste a year.

efficiency, energy and atmosphere, indoor environmental quality, and design innovation.

The 1:5:200 rule brings into perspective the importance of a building to its occupants. For every dollar in initial construction costs, the lifetime operating and maintenance costs of a building are \$5, while the lifetime value of all commercial activities in the building are about \$200. Making the lifetime activity more efficient and productive can raise the level of interest in sustainable building. To ensure sustainability, people must construct buildings other people want to have.

In closing, Dr. Gorgolewski quoted architect Shigeru Ban: “Permanence is not a matter of the material you use; permanence is about whether people love your building.”

Case Study 1: Retrofitting Heritage for Energy Efficiency: The Citadel Project

*Rodney C. McDonald,
Centre for Indigenous Environmental Resources*

Sustainability is the human imperative of the 21st century, said Rodney McDonald. It is defined as “integrated decision making, a mindset based on systemic thinking, which recognizes the embeddedness of humans in the environment and the co-evolutionary dynamic interconnectedness between natural and human systems.”

Sustainability involves three domains: economic, environmental, and social/cultural.

Showing a picture of downtown Winnipeg at the turn of century, Mr. McDonald pointed out aspects of the scene that mirror the inherent features of heritage planning and sustainability:

- walkability and transit—people were able to walk from place to place or use street cars, which generated far less greenhouse gas than today’s transportation
- mixed use—commercial and residential use together
- density

The way people planned 100 years ago is the way “new urbanists” want to develop new communities. Heritage buildings can become a focal point and catalyst for change.

In the early 1900s, the Citadel functioned as a gathering place for the Salvation Army in Winnipeg. By the 1970s it was used for other functions. Since the 1980s, it has been vacant along with the buildings behind and beside it.

People often put up barriers to sustainability. In the case of the Citadel, downtown zoning bylaws were a barrier to reuse. The Citadel project called for taking down an adjacent building and storing the bricks between the remaining two until they could be

reused. This would reduce the need for transportation. Although this was against local bylaws, the project group was finally allowed to store the material onsite under certain conditions.

The vision for the Citadel was to create the greenest heritage building in Canada. The project is based on the principles of *serious* reduction, reuse, and recycling (zero waste). It followed these guidelines:

- interconnected systems within the building as much as possible
- sustainability
- green building based on the LEED Green Building Ratings discussed by Mark Gorgolewski

Energy systems conventionally rely on natural gas or electrical transmission lines. The Citadel’s alternative is onsite renewable energy from solar and geothermal heating and green power from wind energy.

Waste water management conventionally collects water from lavatories and toilets and sends it through the municipal waste water treatment system and into the river. The Citadel’s alternative is a composting and grey water filtering system, which will allow severance of the building’s connection to the municipal sewer system. Composting toilets are



The Citadel Project

in use in other commercial and institutional buildings in Winnipeg.

Storm water run-off conventionally goes into the municipal storm drain. The Citadel will deal with run-off using a green roof, a system that captures water for use in the building, and “pervious” building materials. The project incorporates a cistern big enough for all of the potable water needs in the building. There is currently no allowance in provincial plumbing codes for this system.

The building has been aggressively designed to reduce use of energy and water. It will be 50% more efficient than code. It will use just 25% of the water a conventional building would use.

The Citadel and the building behind it will be joined together by a glass atrium. The site design discourages auto transportation, with only a few parking spaces for deliveries and visitors. The building has good transit access.

Electricity from solar panels and wind turbines on the roof will provide 92% of peak load requirements. The building will remain connected to the grid, which will act as back up. The building will rely on geothermal heat. In summer, the process will be reversed to cool the building. Internal structures will be rebuilt for thermal mass and radiant heat.

The most successful green building projects use an integrated design process in which everyone—including the building’s occupants—is part of the design team from day one. A green building relies on many invisible elements:

- mindset
- processes (integrated design)
- tools (e.g., LEEDS, EE4)
- products (e.g., high efficiency, green carpets)

The challenge today is to prove that an old building is so valuable that it ought to be saved. Rather, the owner or developer should be required to prove that an old building cannot be adapted to new uses. The

heritage community can continue the dialogue by building formal information linkages. The Heritage Canada Foundation can partner with the Canada Green Building Council (GBC) and the local heritage community can partner with chapters of the GBC.

Speaking about cost for green buildings, Mr. McDonald said the project is capital cost neutral primarily because of all of the things it is taking out of the building. It has reduced the building’s mechanical requirements and is dematerializing and “detechnologizing” the building. It can achieve its goals even if it has to phase in onsite electricity generation while waiting for costly solar panels and wind turbines.

In his thesis on the economics of green building, Mr. McDonald showed that it is possible to be capital cost neutral or show a slight increase of 1 or 2%. However, that can only be done by changing the design process. Simply overlaying green building on the conventional design process, will result in a 5–10% cost increase.

Speaking about operable windows, Mr. McDonald said giving occupants the ability to regulate their own environment is important to green building. There will be CO2 sensors near windows to determine if there is enough ventilation. If not, the passive system will kick in and bring in air. Windows highlight the importance of educating occupants about how they interact with the building.

Provincial Minister’s Luncheon

The Honourable David Forbes, Minister of the Environment, Saskatchewan

The Honourable David Forbes said he was pleased to host the luncheon and to have the opportunity to welcome delegates to Saskatchewan on the occasion of the province’s 100th anniversary. He said he would speak informally of several issues and initiatives of current interest. He had spent the summer

extensively touring the provincial regional parks to unveil commemorative plaques, including some at heritage sites such as Cannington Manor, Fort Carlton, and Holy Trinity Church at Stanley Mission. More than \$6.8 million was spent upgrading the parks system in preparation for the anniversary celebrations.

Centennial celebrations are important in that they both recognize the accomplishments of the past and provide an opportunity to look to the next 100 years of growth and development. Heritage conservation, both built and natural, plays a major role by contributing to the economic and social vitality of communities and the province as a whole.

In his role as Environment Minister, Mr. Forbes had recently toured an area of east-central Saskatchewan around Arborfield that was hit hard by very heavy rainfall and subsequent flooding of property and crops. The devastation from the second “once-in-a-100-years” rainfall in a two-month period had not dampened the community’s enthusiasm over the fact that they had recently saved their local rail lines and grain elevator from abandonment and ultimate destruction. The community was excited about the recently designated local RAN (Representative Area Network), which is essentially an ecological reserve. Saskatchewan has designated 14 such reserves to date. Mr. Forbes noted the change in attitude towards such projects that, in the past, were often seen as a negative issue for communities.

The conference theme of heritage conservation and sustainability is an appropriate one for a conference in Saskatchewan, in particular because sustainability is such a key concern in the province. The Environment Department is leading the way with the development of an integrated and balanced Green Strategy for the province. The Green Strategy document is a “landmark”—although it speaks in terms of a five-year time frame, it really is a 25-year blueprint. The Green Strategy is about government, business, and community working together to make choices that can strengthen the economy and

The conference theme of heritage conservation and sustainability is an appropriate one for a conference in Saskatchewan, in particular because sustainability is such a key concern in the province.

Saskatchewan’s stewardship commitment. The Green Strategy will provide an opportunity to make informed choices that will leave the world stronger and healthier for future generations. It focuses on three major themes: innovation, respect (which encompasses heritage issues), and shared responsibility. It recognizes that governments cannot do things by themselves and that they need the assistance of individuals, communities, and organizations such as the Heritage Canada Foundation.

Manitoba and Nova Scotia are undertaking similar programs. An initial round of consultations has been completed and another round is about to begin to gather more input from interested parties. One of the consultations will focus on “parks and special places,” a topic that encompasses heritage concerns. The very important decisions made today will determine the kind of heritage that is passed on to future generations.

Mr. Forbes commented in some detail on the work being done in relation to nature conservancy in the Great Sand Hills area of southwestern Saskatchewan. The government is funding a \$3 million two-year study by the Plains Research Centre at the University of Regina to obtain more knowledge about this very important area in terms of ecology, economic development, and the area’s heritage relationship with local ranchers and First Nations peoples.

Mr. Forbes commented that these are indeed exciting times in Saskatchewan as the province marks its centennial, and that sustainability will be a guiding principle for the province going forward. He read from the province's Green Strategy document, citing a quote from Stan Rowe writing in *Home Place: Essays on Ecology*, 2002: "Yet we have our moments of enlightenment. Collectively and recurrently we show our truer colours, banding together to accomplish worthy goals, freely giving in the interests of perceived higher good, responding to prophetic visions in times of crisis. One such time is now upon us..."

Session 2: Sustainable Cities

Bohdan (Bob) Onyschuk, Q.C.,
Chair of Canadian Urban Institute

The Canadian Urban Institute (CUI) is a non-profit organization with about 350 members, Bob Onyschuk told participants. It is dedicated to enhancing the quality of life in urban areas across Canada and internationally and would like to have more members in Saskatchewan and Alberta. Sustainable development is central to its mandate, and key initiatives include its annual awards to recognize leadership, innovation, and environmental sustainability in brownfields redevelopment. About half the CUI's work is done outside Canada.

The CUI's mandate is similar to that of the Urban Land Institute (ULI) in the United States. Although many of the ideas and concepts related to sustainable development have their roots in Canada, other countries, particularly the United States, are much more advanced in their implementation of such ideas, concepts, and strategies. They have named the concept Smart Growth and have successfully implemented it in many large and small US cities. Some of the basic principles of Smart Growth include:

- stopping urban sprawl
- redeveloping inner-city cores
- repositioning cities for the 21st century economy
- improved transit systems and no more freeways
- more open spaces
- smart financing techniques and initiatives

The Americans have jumped ahead on this issue because they have figured out the need for stronger, good-looking city communities in seeking "new economy" companies and "new economy" workers. They took the Canadian planning prowess and added a "smart financing" process to come up with the Smart Growth concept. Then they focused on revitalizing the downtowns of small and large cities, recognizing that strong city regions drive the US economy. Demographic trends had already begun to foster downtown redevelopment, with heritage preservation and redevelopment being key factors. Also key was the Clinton-Gore administration's Liveable Communities agenda (1997), which kicked off the Smart Growth concept nationally and allowed it to "take off." It has been embraced by both Democrats and Republicans at the national, state, and local levels.

Quality of life is the major factor attracting new economy companies to cities, and it is a "must have" for a successful city in the 21st century. The blend of economic development and heritage aspects of Smart Growth have made it successful. The concept is embodied in Richard Florida's well-known quote: "Quality of life is the missing piece of the puzzle, and in the 21st century quality of life is the prime directive for mankind."

Mr. Onyschuk gave brief statistical and anecdotal reviews of Smart Growth success stories in Chicago, Dallas, Fort Worth, San Diego, San Francisco, Cleveland, Indianapolis, and Maryland.

Urban transit is a very important component of sustainable city development. It gets people out of cars, reduces smog, provides fast transportation connections, and provides nodes. Several examples of successful urban transit redevelopment are San Diego's \$24 billion LRT (Light Rapid Transit) system, Dallas's 21-station LRT system, Houston's similar system, Chicago's LRT system serving two airports, and the expanding LRT system in "car happy" Los Angeles. Calgary is the only Canadian city that stands out as having a notable LRT system, but European cities are models for many of the US systems.

Mr. Onyschuk provided detail on Atlanta's MARTA (Metropolitan Atlanta Rail Transit Authority) system that was developed as a response to tremendous growth and federal EPA requirements for improved air quality.

On the matter of the federal government providing gas tax revenue to municipalities to be used for transit and transportation funding, Mr. Onyschuk noted that a "comparator" is required to determine if the money meets the requirements of large and small municipalities.

In addition, the Americans are implementing open space protection and growth management plans, with 20 states having such plans under development or approved. A significant Canadian example is Ontario's green belt plan for the Toronto horseshoe area, which will also include an integral transportation strategy and plan.

Turning to details and mechanics of the "smart financing" plans being used in the US, Mr. Onyschuk said there are as many as 14 separate programs in place, including tax increment financing (TIF) and federal historic building tax credits. Canada has no such programs and is therefore missing out on economic drivers that greatly influence human behaviour.

Brownfield incentive programs constitute another area where the US has made tremendous progress.

The injection of relatively small amounts of money has spawned phenomenal economic payback. The EPA program, which focuses on national priority brownfield sites, has restored 190 of the sites, provided 13,000 acres of new recreational land, and created many jobs.

Explaining some of the administrative detail that goes into setting up such programs, Mr. Onyschuk noted that CUI will be involved in consultations with the federal government prior to the development of its upcoming budget, with a view to educating and informing federal officials and politicians on the economic benefits of these programs. CUI's key point will be the phenomenal economic spin-off benefits of these programs, aside from the other obvious benefits of improving the aesthetics, maintaining vitality, bringing back the history and identity of historic buildings. It is not good enough to simply have legislation in place to prevent heritage properties from being knocked down—properties are often ignored and one day they will just fall down. In the "carrot and stick" approach, the carrot is a phenomenal economic payback.

To recap, sustainability is a key issue for CUI because it brings back history and identity, which is a focal point for intensification of urban centres. When history and the great buildings in communities are combined, it leads to tourism, economic revitalization, and pride in community.

In response to a question from a delegate, Mr. Onyschuk said that the intensification of urban centres to prevent sprawl is a very important one and is indeed where the "rubber meets the road" on the entire matter of heritage preservation and sustainability. He noted some jurisdictions have addressed the matter by carefully picking the spots for intensification and doing a lot of planning impact analysis.

Asked if he was aware of any developments in the issue of extending Go-Transit service to the St. Catherine's and Niagara Falls areas, Mr. Onyschuk pointed out that existing rail lines in

the area are not available for transit. They are tied up servicing the auto manufacturing and delivery industry, and land use restrictions in that particular area preclude the building of additional tracks.

Case Study 2: Interpreting Built and Natural Heritage Together

David Stonehouse, Evergreen

David Stonehouse provided a brief overview of Evergreen, noting that it was founded in 1991 as a charity, and is entirely focused on cities and nature in cities. Its mandate filled a gap in the environmental movement—urban environmental and design matters were not being adequately addressed, to the point where cities were considered to be apart from nature.

Mr. Stonehouse described the Don Valley Brick Works restoration project. Although it is a huge project, in the \$40 million range, many of its principles and practices could also be implemented on much smaller-scale projects. The Don Valley Brick Works is a heritage property in downtown Toronto, about five minutes from the downtown business district, and adjacent to many local residential neighbourhoods. It is situated in the Don River Valley, and as such is connected to local parks and trails in the river valley. The Don Valley Brick Works was originally developed as a quarry and brick-making factory, and is currently owned by the City of Toronto and the Toronto and Region Conservation Authority. It encompasses 16 hectares and includes 16 industrial buildings that date from 1900 to 1960, industrial equipment, and areas of significant archaeological and geological interest.

The site has social and community historical significance through the pioneer families who started the Brick Works, as well as the immigrant workers and even prisoners of war who worked there over the years. It was the longest-operated industrial facility in Ontario. In addition to its industrial and social

heritage significance, the site is also rich in natural wetland, meadow, and forest habitats, and home to many wildlife species.

The previous owner, a German-owned ceramics company, wound down the business in the 1980s and offered the property to the City of Toronto at a price of \$5 million. The City felt the price was too high, resulting in its sale to a private developer who began filling in the quarry with excavated materials from other developments, and put together a plan for high-density housing on the site. Local opposition to the developer's plans resulted in the City and the Toronto and Region Conservation Authority eventually purchasing the property in the late 1980s for \$25 million. A modest master plan was developed in 1993–94 resulting in the expenditure of \$6 million for landscape improvements, and the park was opened to the public in 1997.

Through a request for proposal process Evergreen was engaged to develop “Evergreen Commons” at the Don Valley Brick Works site. The project is designed along the themes of “Nature, Culture, and Community,” and “Restoration, Cultivation, and Community Engagement.”

Evergreen's proposal for the site does not just involve business; it is not just an environmental education centre, and it is not just a museum. The marriage of those three elements will be interesting, do justice to the site, and operate on a break-even basis.

At the suggestion of City and conservation authority, Evergreen attracted partners including the YMCA of Greater Toronto, Outward Bound Canada, and Jamie Kennedy Kitchens. The centrepiece of the project will be the 10,000-square-metre Evergreen Gardens native plant nursery and demonstration garden to propagate native plant material. The facility's Discovery Centre will include a visitor information area, exhibits, a museum, classrooms, restaurants, meeting and convention space, and office space for Evergreen and other NGOs. As well, the park will continue to be



Ken LaPointe

View of Regina's historic Victoria Park

managed by the City. All the buildings in the development will be “green” buildings and there are plans for other organizations to deliver programs and services on the site—for example, an organic food market, outdoor theatre, winter skating facilities, trails centre, and pottery kilns.

Evergreen’s intends to fund the \$40 million project on a fifty-fifty public sector-private sector basis. To date, \$16 million has been secured, the bulk of that being a \$10 million contribution from the Ontario government announced this past June. There is an ongoing dialogue with the federal government, in the hope of receiving a matching \$10 million contribution. The concept is for the site to be self-sustaining through revenues from leasing, admissions, special events, and conferences. With significant funding contributions now in place, Evergreen is moving ahead with the project and contracting with heritage architects, archaeologists, green building engineers, and planners. Ongoing issues include flood-proofing for the site, issues related to public transportation to and from the site, a public consultation process to engage both the heritage community and environmental activists, ongoing fund-raising, and the process of obtaining the required approvals.

Sustainability will be a key component of the project, ranging from green building design and ecology of the park, to obtaining commitments from the various onsite partners that they will adhere to strict environmental standards.

Asked about the status of the onsite heritage buildings, in terms of their preservation and use in a sustainable fashion, Mr. Stonehouse said Evergreen intends to use the buildings as responsibly and as sensitively as possible in their re-adapted use. The present condition of the buildings is still relatively unknown except for the fact that most of the roofing material is asbestos and will have to be managed very carefully. The adapted use of the buildings will be an ongoing issue that will be dealt with in the context of the heritage and sustainability matters involved.

Asked what angles, options, and opportunities Evergreen may be exploring for interpretive use of the site, Mr. Stonehouse responded that Evergreen does have people on staff who address this issue, with an intention to focus on the key themes where history, heritage, culture, and geology come together.

Technical Demonstrations: Retrofitting Heritage Buildings for Energy Efficiency

*Terry White, Manager of Municipal Program
Development, Saskatchewan Office of Energy
Conservation*

Using his home as an example, Terry White discussed energy efficiency considerations in heritage buildings. Before addressing energy efficiency, he had to deal with problems caused by previous occupants. Drain pipes had rusted or been cut off. Over time, the result was significant water seeping into the basement during heavy rains. To resolve the problem, the Whites gutted their basement and applied a moisture controlling agent to the walls. This was topped with rigid foam insulation and drywall.

They then installed radiant floor heating over the existing concrete basement floor and poured 4 cm of concrete over top. In the kitchen, in areas that were not readily accessible, they ran heating pipes along the base of the floor joists. A reflective barrier on the bottom of the joists sets up a conductive heating environment.

Frank Lloyd Wright discovered the concept of radiant heating in Japan in 1914, while building the Imperial Hotel. He was invited to dine at a castle and during dinner, his hands were so cold, he was unable to eat. After dinner, the company retired to another room, which was dramatically warmer. Wright learned it was heated by an ondol, the Korean version of a hypocaust, a Roman system of underground heating. It was not until the 1970s that the technology became successful.

According to the International Energy Association's Energy Conservation in Buildings and Community Systems Programme, the optimum condition for human comfort and energy efficiency at 50% relative humidity is an air temperature of 18°C and a mean radiant surface temperature of 25°C.

Most experts agree that reflective insulation has no value in stopping thermal transfer. However, it does have value in radiant heating. Mr. White used reflective foil over the insulation in his attic and this has made a significant difference in the comfort level on the second floor.

Mr. White's fireplace was also a source of heat loss. Before installing a wood fireplace insert, the Whites could feel cold air drawn into the room through every leak in the building when they started a fire. Natural Resources Canada says wood fireplace inserts are almost as efficient as free-standing wood burning stoves.

Lighting is another concern. Compact fluorescent light (CFL) bulbs use one quarter the electricity of comparable incandescent bulbs. When making this change, retrofitters must remember to consider the building's occupants. Fluorescent lighting produces many different colours of light and contractors may need to experiment before getting it right.

It is also important to take care when making changes that affect the structure of heritage buildings. The underpinnings of the Saskatchewan Legislative Building, for example, have been completely redone at significant cost. Their failure was accelerated by mechanical changes made over the years. New heating pipes and air conditioning dried out the soil and the building sank. In another provincial government building, adding roof insulation to reduce energy bills caused the roof to fail. The old roof system had been held in place partly by being warm.

It is important to bring together a variety of perspectives when dealing with buildings. Pre-Renaissance art had no horizon and no vanishing point, and therefore could not accurately depict the world. Introduced by Brunelleschi, a sculptor, architect, and engineer, the vanishing point was adopted almost overnight. Mr. White said he still sees humankind in that stage with energy efficiency.

The vanishing point is the point at which no further improvements can be made in comfort or energy efficiency.

Asked about humidity and heritage buildings, Mr. White said about 25% or lower is common in Western Canada in the winter. When vapour barriers are added to old buildings, cold spots often arise and condensation appears on window panes and ledges.

In response to another question, Mr. White said humidity level changes the feeling of comfort. It is a more significant factor with forced air than radiant heat. Since forced air robs the body of moisture, a higher relative humidity feels better. With radiant heat, a lower relative humidity will suffice.

Asked about the radiators in his home, Mr. White said they are cast iron and his boiler temperature is 55°C. In a demonstration house in Regina, the radiant floor heat is set up to operate at a low temperature input of 28–30°C. The Whites are keeping the air temperature cooler and experimenting to see what the optimum temperature will be.

The Office of Energy Efficiency is promoting building designs that can operate on any part of the full range of available energy sources, from high quality gas or electric heat to low quality alternatives like solar heat. A lower input temperature widens the potential for lower quality/alternative energy and waste energy.

With regard to ducting, Mr. White said it is important never to have more than 91.5 metres of radiant heat piping in a single loop. The floor surface should be no more than about 29°C and the input no more than about 34°C. There should be no more than 5°C difference between the two. Proper control theory is not about temperature, it is about fluctuation. It is difficult to control temperature to such a fine degree. Changing the flow will bring finer control.

In response to a question about insulation in heritage buildings, Mr. White said buildings have traditionally been insulated on the wrong side of the

thermal mass: the inside. Insulation should be on the outside to take advantage of the thermal mass. The most energy efficient buildings were built in the 1920s. The walls were thick and a window could be opened to change the temperature in a room, without changing the entire building. However, retrofitting to insulate on the outside is tricky. Changing the heat flow changes the moisture flow and temperature gradients as well.

Asked about exteriors, Mr. White related the story of a homeowner who bought a 1950s house with almost no insulation and a really bad boiler. He took out the boiler and put in one of the best available. He removed the aluminium cladding and wrapped the house in two-sided foil insulation and replaced the siding. After the first winter, when he had done all but the house's south side, his gas bill fell by 72%.

A participant asked about comfort in multiple unit heritage buildings where cast iron radiators are piped floor-to-floor instead of across the floor. Mr. White advised installing a crossover pipe with a valve on it between the supply and the return. If the temperature coming into the manifold is too high, open the valve to mix the low temperature return with high temperature supply to bring it down. Water should be constantly circulating through the pipes. Cast iron radiators are second best to thermal mass radiant floor heat.

In response to another question, Mr. White said outdoor temperature sensors help compensate for the thermal lag inherent in thermal mass. With an outdoor sensor, as soon as the outdoor temperature drops, the sensor tells the boiler there will soon be heat loss through the envelope, and it begins heating.

Asked about radiant ceiling heat, Mr. White replied that it is less efficient since it is farther from the occupants than floor heat. Also, it is difficult to put thermal mass into a ceiling.



Conference delegates enjoying the stained glass walking tour in Regina

Case study 1: Conversion of the Riverside Silk Mill to the University of Waterloo School of Architecture, Cambridge, Ontario

Rick Haldenby, School of Architecture, University of Waterloo

In the post-war period, industrial, retail and commercial businesses fled the core of Galt (now Cambridge), launching 30 years of decline, Rick Haldenby told participants. The textile industry was in decline, and many mills along the Grand River were closed, while others were demolished. The City of Cambridge was created in 1973 with the forced amalgamation of three towns. A year later, a flood devastated the Galt area, leaving behind a landscape of contaminated empty lots and unappealing flood walls. Luckily, there had not been much demolition of the city's many beautiful heritage

buildings. Over the years, a group of concerned citizens constantly sought to find ways to bring life back to the core. Plans for heritage centres, textile museums, and an IMAX theatre all failed. Decline of the area was slow, but continuous.

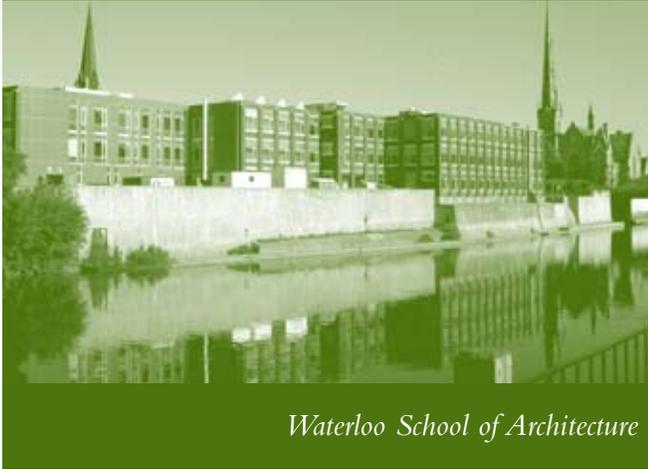
The Centre for Core Area Research and Design, a group affiliated with the School of Architecture, studies the challenges and opportunities faced by core areas in middle-sized cities. Its work focuses primarily on the Waterloo region. The group has conducted about 50 studies ranging from security audits in core areas to mapping social services.

In November 2000, the group addressed the Cambridge Chamber of Commerce. One Chamber member raised the idea of moving the School of Architecture to Cambridge. The idea quickly took shape. A week later, 60 business leaders met to discuss it, and the new mayor declared that architecture was the future of the city.

By year end, the Cambridge city council committed \$5 million (later increased to \$7.5 million) and nominated the project for Millennium Partnership Funds from the provincial and federal governments. By mid-March 2001, a binding agreement was in place to raise \$27.2 million to move the school and create operating and maintenance endowments.

Riverside Silk Mills was initially thought to be a temporary home for the school while a donated property was cleaned up. However, the group was attracted by the larger 9,000-square-metre building, which could be ready quickly without any costly clean up. Situated on the river in heart of old Galt near the city's main public spaces, churches, and library, the three-story building was the youngest industrial building on the river in Galt. The building envelope was intact except for one part of a previous renovation left unfinished.

The building committee developed the following principles to guide the building's redesign:



Waterloo School of Architecture

- maximum reuse—waste nothing of the exiting structure and promote environmental sustainability
- public building—introduce public spaces and uses, in and around the building
- students first—give students the best orientation and best views of the river and historic Galt core
- don't over-design—treat organization, space, light, views, and material simply and straightforwardly, recalling the building's industrial past, and giving it a timeless quality

Construction began in December 2003 and the first classes began in September 2004.

Thanks to the donation of materials like concrete and light fixtures, the building was constructed for only 99 cents per square foot. The budget included \$11.7 million in capital expenditures, \$3 million for equipment and furniture, a \$6-million maintenance endowment, and a \$6.5-million operating endowment. The money came from the City of Cambridge (\$7.5 million), the federal and provincial governments (\$8.2 million), and private donations (\$11.5 million)

The school has become an inspiring space for students and a catalyst for economic and cultural development. The school's film theatre and lecture hall are used for lectures, public presentations, the-

atre, music, and meetings. The school also houses an art gallery dedicated to design, funded and operated by a local group of libraries and galleries. When the university's food services declined to run the cafeteria, the school accepted a proposal from one of the area's best restaurateurs.

The school has had a dramatic effect on the revitalization of the core area. It brought 300 students to the core area, where 85% live closer than a ten-minute walk to school. Many heritage homes, perfectly suited to architecture students, have been renovated. Another 500 new housing units are approved or under construction in the area. Design firms, businesses, and cafés have moved into the area, and many faculty, staff members, graduates, and students have bought or leased property in the area.

The School of Architecture now offers four new programs: The O'Donovan Heritage Project (heritage research in architecture), Engineering Architecture, Urban Design, and Cultural Sites.

Other similar initiatives include the Laurier School of Social Work relocating to Brantford and the McMaster School of Pharmacy moving to Burlington.

Case Study 2: Sustainable Development using Municipal Heritage Incentives

Erik Hanson, Heritage Preservation Officer, Peterborough, Ontario

Erik Hanson explained that Peterborough's "historic aura" is the product of a serendipitous event at just the right moment in time: 13 years ago, Peterborough City Council instituted a five-year moratorium on large-scale development outside the commercial core. While initially criticized as being "anti-business," this move had a long-term positive effect. It slowed the "big box" retail phenomenon coming to downtown Peterborough. It recognized

the downtown as a “shopping node” with all the related planning that goes into other commercial nodes. Although the moratorium was not renewed after the initial five-year period, by then it had done its job of stabilizing the downtown core.

Low-end retailers stabilize an area from an economic perspective because they make possible the continued existence of heritage buildings, and the upper-scale businesses either represent a risk-taking entrepreneur using the low overhead of an older building to assist his business venture, or a business using the restored buildings to capitalize on “heritage cachet” as part of a marketing strategy. Although Peterborough’s is no longer a “traditional” downtown, it is nonetheless, a healthy downtown.

In the last two years, the focus has been to promote a preservation ethic to create a stable post-industrial community and centre-core revitalization as part of a healthier urban planning ethic. There is still a long way to go: the City still approves huge greenfield subdivisions that cost millions in added infrastructure; the mass transit system is utterly outdated; Edwardian school buildings still get demolished for parking lots while other jurisdictions redevelop them into housing units.

While development is still geared around the transportation needs of people with automobiles rather than being more pedestrian-friendly, it is Peterborough’s quest to preserve the urban world as it existed before the automobile.

The re-densification of Peterborough’s downtown core is more about rehabilitation than new development on brownfields. Thirty per cent of the core is vacant land used for parking, but there are many structurally sound buildings with vacant upper floors and historic institutional buildings coming available for re-use—for example, the old YMCA building and the Armouries. The target use of such buildings would be housing. This is an exercise in sustainable development. It minimizes the use of the automobile, and promotes the use of alternative

modes of transit. A residential population in the core lowers crime rates, generates a demand for aesthetic civic improvements, and reduces the need for additional infrastructure and services city-wide.

To create incentives, Peterborough first waived development charges in the historic core. A facade-improvement funding program is underway. In 2002, the City passed a bylaw to take part in the Heritage Property Tax Relief Program. Its specific purpose is to provide assistance to the owners of historic buildings in recognition of the fact that there is a premium to the cost of maintaining historic buildings and doing the work properly. The maintenance of high conservation standards is integral to the program. This fall the City will be considering a report recommending the adoption of the Historic Places Initiatives’ *Standards and Guidelines for the Conservation of Historic Places in Canada* as a base-line standard for tax relief program properties.

The tax relief program has generated many applications for historic designation. Significantly, there are eleven new commercial designations compared to only one prior to the tax relief program. One of the participation requirements is that owners submit an application with a maintenance plan. The maintenance plan notes the current condition of the property, future plans for repair and preservation of the heritage features, and a broad time frame for completion of the work. The program does not require the tax relief dollars to be spent directly on the maintenance plan; it simply requires that the building be maintained to recognized heritage standards. This is a “carrot and stick” approach, in that administration, monitoring, and paperwork are minimized for both the owner and the City, while the City maintains the ability to claw back the value of the tax relief, plus interest, if a determination is made that standards are not being maintained. The fees are not burdensome, with the five-year renewable fee of \$200 applying to residential property, and a five-year renewable fee of \$400 applying to commercial properties. Currently under review is

the requirement to maintain “replacement value” insurance—it is an odd requirement in that it is impossible to replace a heritage property that suffers a complete loss, and often the cost of such insurance for commercial buildings far exceeds the value of the tax relief received.

The heritage of the pedestrian-scale organic city of 100 years ago is not worth saving just because of the connection to the past—its salvation has become critical to humankind’s continued healthy existence on the planet. The preservation movement is not just about old buildings any more—it is about street trees to store carbon and cool cities, urban lighting that engenders safe spaces, and a right to a landscape that promotes health and well-being.

Mr. Hanson quoted Henry David Thoreau: “How good is a house if you haven’t got a decent planet to put it on?”

Asked who owns the easements under Peterborough’s program, Mr. Hanson responded that the municipality holds the easements, under the authority of the *Ontario Heritage Act*, and has used the easement section of the Act as a template for its easement provision.

Responding to a question about the smaller buildings that do not in themselves hold significant heritage value but are still an integral part of the historic atmosphere, Mr. Hanson said those buildings with no clear, distinctive heritage value end up as a “Category C” building, meaning that without it the overall heritage value of the street is diminished.

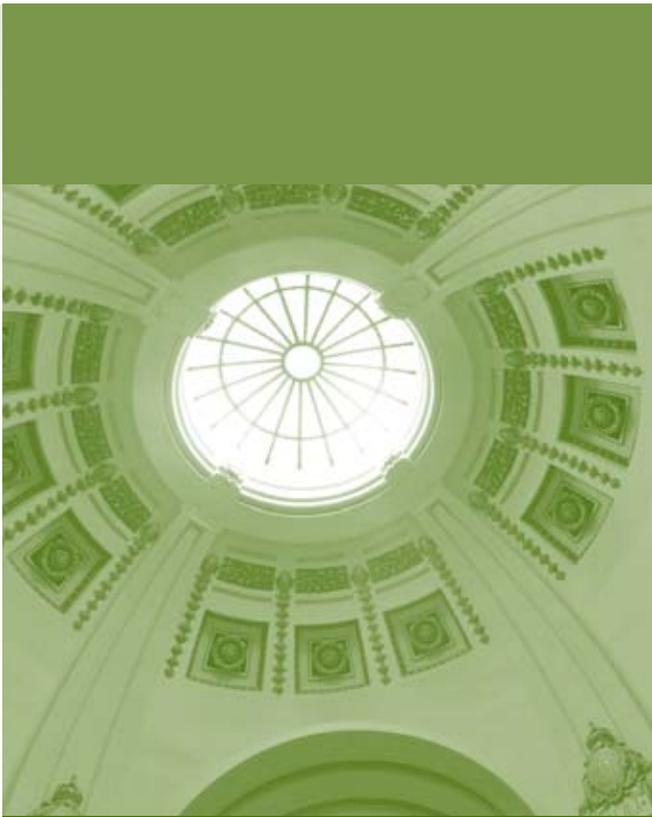
In response to a comment that Toronto’s heritage designation program seems to function on the basis of a property being “at risk” rather than its heritage quality, Mr. Hanson noted that by the time a Peterborough heritage property is “at risk” it is usually too late to save it. An inventory system would be very helpful in making people aware that such properties exist. The *Ontario Heritage Act* gives municipal councils the right to deny demolition of designated buildings. Peterborough has streamlined the designation process to minimize the cost—a designation brief can often be done in two days or less by one staff person. A delegate noted that Calgary has a similar system, but has trouble keeping up with volume of buildings involved. A delegate commented that Saskatoon’s tax abatement program usually falls



Core intensification in Peterborough, Ontario

The program has been very successful—28 properties are participating, requests for designation have increased, and at least one large rehabilitation project was made feasible. Although not all the projects are related to housing, several are for affordable housing units, and as such are combining the Canada Mortgage and Housing Corporation (CMHC) Residential Rehabilitation Assistance Program (RRAP) with the City’s tax relief program. The conversion of the old 1953 Post Office building into a 93-unit rental property is the first major multi-unit rental development since 1975. The bigger picture, said Mr. Hanson, is that people must begin to see preservation as a way to protect the “historic fabric” of city landscapes.

City of Peterborough



Interior of the dome of the Saskatchewan Legislative Building

down when the developer cannot access the dollars “up front.”

Asked if the Heritage Preservation Officer in Peterborough has the authority to see and approve demolition applications, Mr. Hanson said he himself now has that authority.

In response to another question about heritage and sustainability Mr. Hanson said that planning is not a scientific exercise, but is a human exercise. The “preservation world” needs to take a page from the environmentalists. They are listened to in a way that the heritage advocates are not. The public does not understand what a preservation advocate is, nor the value in creating better communities. People must see heritage preservation as an engine of social justice. Preservation advocates must be ready to be the spokespersons for that agenda. A delegate commented that it would be helpful to put numbers to the heritage conservation and sustainability issues, because people tend to judge social issues on the basis of financial values.

Banquet: Heritage and Sustainability – Lessons Learned in America

Donovan Rypkema, Place Economics, Washington, D.C.

Donovan Rypkema began by noting that at the recent World Urban Forum in Spain he found that much of the world has begun to recognize the inter-relationship and inter-dependency between sustainable development and heritage conservation, but North America lags behind. Also, although his presentation was titled Heritage and Sustainability: Lessons Learned in America, he said he is not sure people have really learned those lessons.

Many advocates in the United States define sustainable development too narrowly. It is not only about environmental sustainability, but also economic and cultural sustainability. To be viable, liveable, and equitable, a community must link environmental responsibility and economic responsibility. The role of heritage conservation becomes much clearer when it is considered in that broader context.

North American planners, architects, landscape architects, and developers are moving away from building endless sprawl, towards building better cities. The movement incorporates some common principles:

- mixed use
- community interaction
- transportation and walkability
- tree-lined streets
- open space
- efficient use of infrastructure
- houses close to the street
- diverse housing
- high density
- reduced land consumption
- links to adjacent communities
- enhances surrounding communities
- pedestrian friendly

The principles are exactly what historic neighbourhoods currently provide—they just need protection. It is also important to have effective programs of centre-city revitalization. It is hard to find a single example of successful downtown revitalization strategy where historic building conservation was not key.

Heritage conservation's contribution to the environmental area of sustainable development takes the form of "embodied energy," or the total expenditure of energy involved in the creation of a building and its constituent materials. When a heritage building is lost this energy is thrown away. It is often replaced with new materials that have consumed vastly more energy.

Smart Growth is a broad-based sustainable development movement in the United States, which enjoys widespread support across political, ideological and geographical boundaries. It has a clear set of principles:

- Create a range of housing opportunities and choices.
- Create walkable neighbourhoods.
- Encourage community and stakeholder collaboration.
- Foster distinctive, attractive places with a sense of place.
- Make development decisions predictable, fair, and cost-effective.
- Mix land uses.
- Preserve open space, farmland, natural beauty, and critical environmental areas.
- Provide a variety of transportation choices.
- Strengthen and direct development toward existing communities.
- Take advantage of compact building design.

If a community did nothing but protect its historic neighbourhoods, it would have met every Smart Growth principle.

A frequently under-appreciated benefit of historic buildings is their role as natural incubators for small business—firms employing fewer than 20 people create 85% of all net-new jobs. New construction uses 50% labour and 50% materials, while rehabilitation uses 60 to 70% labour. It is usually local, while materials are often produced far away.

If a city could establish a program to rehabilitate as little as 3% of its building stock per year it would have perpetual employment in the building trades. Mr. Rypkema compared the economic benefit of highway construction, building construction, and historic building rehabilitation:

- \$1 million highway expenditure might create 32 jobs, \$1.2 million in household income, \$100,000 in state taxes, and \$85,000 in local taxes;
- \$1 million new building expenditure might create 36 jobs, \$1.2 million in household income, \$103,000 in state taxes, and \$86,000 in local taxes;
- \$1 million expenditure on historic building rehabilitation might create 38 jobs, \$1.3 million in household income, \$110,000 in state taxes, and \$92,000 in local taxes.

Heritage tourism is another area that consistently emerges as a major component of preservation's economic impact. In Virginia, a study concluded that heritage tourists stay longer, visit twice as many places, and spend 2.5 times as much money on a per-trip basis. Other studies show similar trends.

Research also finds that local historic districts do affect property values. Properties within local designated historic districts appreciate at rates greater than other local areas, and faster than in similar, non-designated areas. The worst-case scenario has been an equivalent rate of appreciation for historic district property.

In a globalized world it is necessary to be economically competitive, so a community must position itself to compete worldwide. A large measure of that competitiveness will be quality of life, and built heritage is a major factor. In reality, there are two globalizations taking place: economic and cultural. The assumption that cultural globalization is unavoidable has not been challenged. Economic globalization has widespread positive impacts—cultural globalization ultimately diminishes everyone. A community can participate in the positive benefits of economic globalization through the adaptive re-use of heritage buildings, while simultaneously mitigating the negative impacts of cultural globalization.

In the long run the matter of cultural and social responsibility may be the most important. Very expensive solutions are being proposed to the current US housing crisis, but the most obvious is barely on the radar screen: stop tearing-down older historic housing. In the last 30 years the US has lost 6.3 million year-round housing units from the inventory of older homes, and more than 80% were single-family residences. As a result millions of American families are currently paying for newer housing that they cannot afford. When cities implement policies to preserve older housing stock, they are meeting the social responsibility part of sustainable development.

Economic integration is as important as affordability. America is not nearly as diverse on a neighbourhood level as it is nationally. The exception exists only in historic neighbourhoods, which have rich and poor, Asian and Hispanic, college graduates and high school dropouts being neighbours in the truest sense of the word. Cities need this kind of economic integration.

Not only is labour-intensive historic preservation work an economic benefit; it is also a social benefit because of the relatively high-paying work for those without advanced education. Historic preservation

and downtown revitalization are forms of economic development that are also community development, and ultimately part of social responsibility.

“There can be no significance without memory,” said Mr. Rypkema, and a city’s historic buildings are indeed its memory.

In conclusion, Mr. Rypkema said any claim for rights that is not balanced with responsibilities makes civilization less civil, results in an entitlement mentality, and makes for a nation of mere consumers of public services rather than of citizens. Heritage conservation is a “responsibility movement” rather than a “rights movement” that urges people toward the responsibility of stewardship not merely the right to ownership. Sustainability means stewardship and there can be no sustainable development without a central role for heritage conservation.