



The central atrium of the Red River College green building project. / L'atrium central du projet d'immeuble écologique du Red River College

PHOTOS: GERRY KOPELOW

# SAVING HERITAGE IS KEY TO SUSTAINABLE DEVELOPMENT

BY SUSAN M. ROSS

Canadians have had many reasons to support heritage conservation. The movement toward sustainable development has strengthened those reasons by emphasizing many additional benefits to conservation. Heritage is a non-renewable resource—when we lose a cultural landmark we not only lose opportunities for the community to reuse the landmark, we lose invested resources and energy, add to landfill, and exploit new resources.

Heritage conservation is key to sustainable development and development is not sustainable without heritage conservation.

For heritage conservation to be recognized as key to sustainable development, we must first understand what sustainability means. The 1987 Brundtland report, *Our Common Future*, defined sustainable development as that which "meets the needs of the present without compromising the ability of future generations to meet their own needs." Over the last twenty years, environmental protection, economic growth and social justice have emerged as the major values of sustainable development.

In some areas the integration of the goals of sustainable development with those of heritage conservation is already evident. This includes:

- Revitalizing urban districts, which can address major socio-economic objectives while preserving historic places.
- Managing cultural landscapes to harmonize the conservation of natural and cultural heritage.
- Redeveloping Brownfields, which may involve mitigating environmental issues in the context of a historically significant site.

In these types of areas, sustainable development is providing the context for reinforcing and broadening the cultural basis for heritage conservation.

In other areas, the potential for integrating common goals needs to be reinforced. Green building design, which relates to environmental sustainability strategies, promotes site reuse but is generally geared towards new building design. This tendency ignores the fact that conserving entire buildings for reuse is basically a stronger environmental strategy than recycling the materials salvaged during a demolition.

The potential for heritage conservation to thus reinforce and expand ideas of green design by focusing on rehabilitating older existing sites is not yet fully understood.

With respect to environmental protection, heritage conservation:

- Frequently involves densely developed sites, thereby reducing urban sprawl by efficiently using existing infrastructure and reducing demolition with its associated waste and landfill issues.
- Works with existing buildings and materials. This conserves embodied energy and reduces the need for new materials.
- Offers lessons in traditional models for climate adaptation.
- Contributes to developing a culture of repair and reuse.

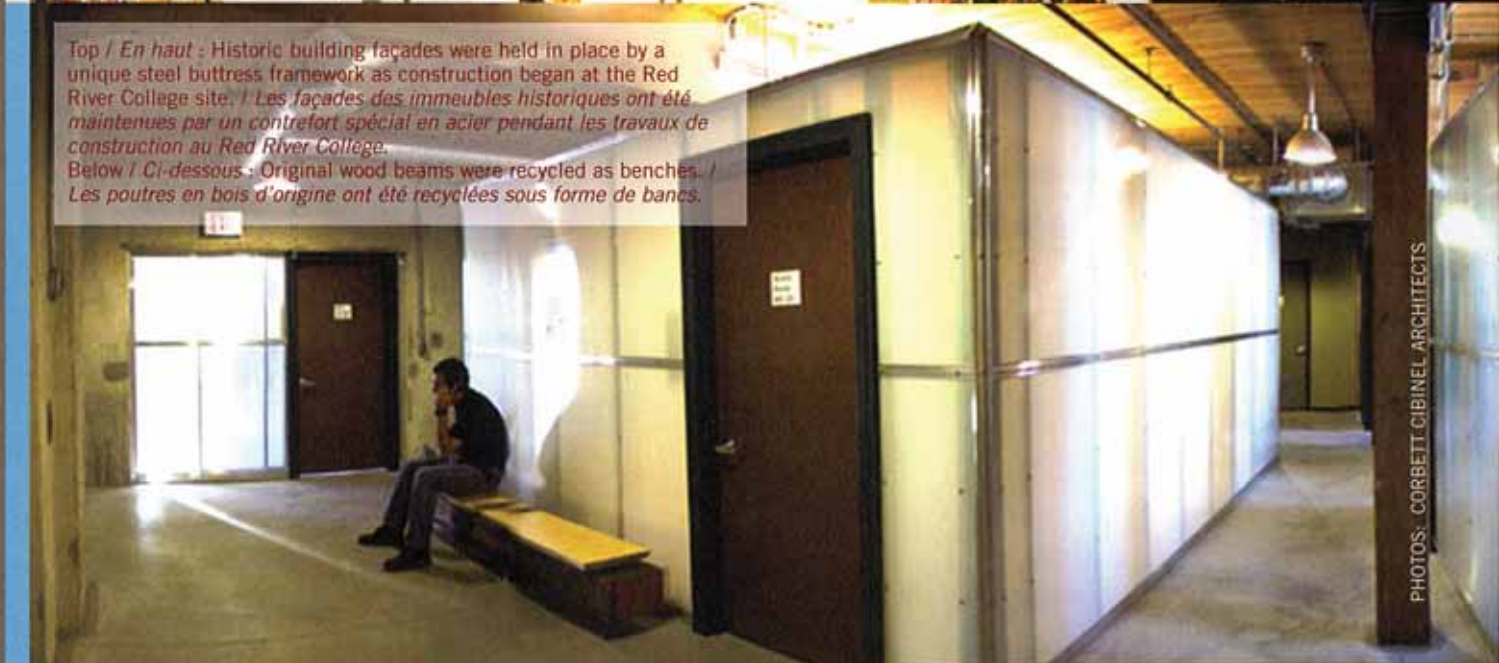
Regarding economic issues, heritage conservation:

- Saves demolition, land development and construction time costs.
- Contributes to developing life-cycle-based re-investment patterns.
- Helps retain or create high-skilled jobs.
- Helps preserve or develop regionally based self-directed and self-sufficient economies of resource use.
- Develops the market value of existing buildings and neighbourhoods.
- Contributes to economic development, such as cultural tourism.



Top / En haut : Historic building façades were held in place by a unique steel buttress framework as construction began at the Red River College site. / Les façades des immeubles historiques ont été maintenues par un contrefort spécial en acier pendant les travaux de construction au Red River College.

Below / Ci-dessous : Original wood beams were recycled as benches. / Les poutres en bois d'origine ont été recyclées sous forme de bancs.



PHOTOS: CORBETT CIBINEL ARCHITECTS



Elements of the Exchange Building's designated interiors were reinstated in the reconstructed shell / Les éléments intérieurs désignés de l'immeuble de la Bourse ont été remplacés dans la coquille reconstruite.

With respect to social justice, heritage conservation:

- Contributes to understanding, preserving and developing communities.
- Develops local community identity, pride and cohesiveness.
- Preserves or provides lower cost rental housing and commercial space.
- Preserves or provides jobs, skills and public education.
- Encourages small-scale diversified uses and occupation.

The heritage conservation community still needs to ask itself:

- How can we further contribute to environmental, economic and social sustainability?
- Do our projects promote the use of recycled and durable materials and techniques while considering embodied effects, performance and life cycle assessment?
- Can our work be more economical, based in local economies, investing in long-term durable solutions, contributing to broader economic objectives and policies?
- Do our projects involve the community and engage processes of local democracy and consultation and will they be accessible, provide needed functions and reinforce broader planning frameworks?

### RED RIVER COLLEGE, WINNIPEG: REUSE AND REVITALIZATION IN THE EXCHANGE DISTRICT

Examples of green building design incorporating heritage buildings or heritage conservation projects with clear sustainability goals are still rare in Canada. However, one such project is Winnipeg's Red River College, which illustrates some challenges in achieving both types of conservation goals.

The recently built Red River College in Winnipeg's Exchange District is environmentally successful while also incorporating a row of significant heritage buildings. This project illustrates the impact of meeting a range of environmental goals while providing important socio-economic benefits to a specific historic place.

The college occupies an entire city block, part of which is in the Exchange District, a national historic site. Five of the seven buildings on the site have a municipal heritage designation, four of them for their façades only. One includes some interior spaces and elements. Two of these buildings housed the city's original grain exchange.



PHOTOS: GERRY KOPELOW

The Learning Commons Red River College. / *Le Centre de ressources éducatives du Red River College.*

The project had three main parts: preserving the façades of the row of five buildings and reconstructing their side and back walls with new structure and floor divisions behind; rehabilitating a non-designated warehouse; and new infill construction across the rest of the site, in keeping with the original massing and scale of the site and district.

The project's environmental accomplishments include representing Canada at the 2002 International Green Building Challenge in Oslo, Norway, and earning the Canadian Urban Institute's "Brownie" award in 2003 for successful Brownfield remediation. Green design features include building reuse, site rehabilitation, materials reuse and waste reduction, energy efficiency, green roofs, grey water treatment and planned flexibility.

The socio-economic value of the project has also been celebrated. Creating a new urban campus for a community college and bringing some 2,000 students and at least 200 jobs into an area that was neglected since the 1960s is a socio-economic catalyst for further redevelopment of the district and the city as a whole.

The project also had heritage conservation goals, including conserving a row of buildings on Princess Street. Essentially, only the façades of these buildings were preserved. Spaces behind the façades were reconstructed to preserve the side and back wall but introduce new structure and a more homogeneous floor plane. Elements of the designated interiors of the Exchange Building were reinstated within the reconstructed shell.

When considering the separate designations for each building (with distinct associative and architectural values), only preserving the façades has a major impact. However, if the city designated only the façades because the streetscape is what was valued, it is important to consider the project at that level. Designating the façades alone has perhaps allowed for greater flexibility in changing the building's use and has thus increased the potential economic viability for the entire group of buildings to be reused.

On the other hand, in considering the specific value attributed to the façades, replacing all the original windows is problematic. Not all windows were in equally poor condition. Some could have been repaired, not only preserving heritage fabric but also reducing



PHOTO: GERRY KOPELOW

The façades of the historic buildings on Princess Street, Winnipeg, were incorporated into the Red River College green building project. / Les façades des immeubles historiques de la rue Princess, à Winnipeg, ont été intégrées au projet d'immeuble écologique du Red River College.

waste. In fact, projects like this could demonstrate less wasteful ways to improve energy efficiency as part of window repair work.

Elsewhere, the project's approach to reusing materials raises critical questions on the treatment of architectural fragments. In some cases salvaged character-defining elements are reinstated in new interior spaces, in others built fabric was treated as a source for recycling, to be reused as originally intended (brick in solid masonry walls) or in new ways (wood beams as benches). The result, which may be confusing in expression, suggests the need for clearer guidelines on the treatment of architectural fragments, one that respects heritage value while offering opportunities for materials reuse.

This analysis of Red River College is revealing as it:

- Highlights that projects involving some form of heritage conservation are gaining recognition in green building design and Brownfield rehabilitation.
- Illustrates the need to balance socio-economic gains—related to a viable new use bringing occupants, jobs and broader revitalization of the district—with the loss of some heritage fabric.
- Demonstrates that the emphasis on the streetscape of façade-only designations may offer advantages when faced with new uses.

- Suggests the need to develop window energy upgrade technology that incorporates repair-based strategies.
  - Points towards the potential need for clearer standards on the treatment of salvaged architectural fragments as reused materials.
- To ensure that heritage conservation is recognized as a critical strategy of sustainable development, heritage experts and proponents need to describe and promote the environmental, economic and social benefits that result. However, as this example helps illustrate, it will be equally important to enter into the discourse on sustainability to ensure that the current cultural values and principles of heritage conservation are given their place and due consideration in the projects and practices of sustainable development.

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## RED RIVER COLLEGE, PRINCESS STREET, WINNIPEG—SOME GREEN PROJECT FEATURES

- Built on a Brownfield site, the project won the "Brownie Award" from the Canadian Urban Institute for the Best Brownfield Project in Canada October 2003.
- The college operates at an energy efficiency level that is 47 percent better than the Model National Energy Code, which equates to a savings of roughly \$200,000 a year.
- A large amount of existing material was salvaged, recycled or reused within the project, or directed to alternate uses. Brick, heavy timbers, glass, millwork, light fixtures, steel columns, ceramic tile and Tyndall stone cladding were all reclaimed.
- Preservation of heritage building façades and their integration into the new building was made possible by temporarily supporting them with a unique steel buttress framework. The steel from the buttresses was then reused elsewhere in the project. (Crosier Kilgour & Partners won an engineering award for this unique temporary support framework design.)
- The project emphasized the use of local materials thus avoiding long-distance shipping.
- Concrete building structures are exposed to act as a heat sink, storing energy for distribution at night when the high-efficiency gas boilers are turned down.
- Automated shading devices increase the use of natural lighting and reduce cooling loads and glare in interior spaces.
- Translucent interior walls, used for many of the offices, allow for natural light to penetrate deep into the interior of the building.
- A 12.8 kilowatt photovoltaic display, laminated between panes of glass on the south façade, produces enough electricity to power five houses over a year.
- A roof-top garden dedicated to growing prairie grasses reduces the heat island effect and lessens the storm water loads on the city sewer system.
- The development is integrated into the municipal transit system.
- Use of finishes is minimized by eliminating or reducing drywall, paint surfaces, ceramic tile and suspended ceilings.
- The building has a low level of "embodied energy" (i.e., the energy it takes to make products) by having reduced materials such as carpet, ceiling tile and extraneous finishes.
- The college is the largest C-2000 building in Canada. It represented Canada at the "Green Building Challenge" Sustainable Buildings Conference in Oslo, Norway, in September 2002 and placed 5th out of 36 projects.