

ECORoof

CASE STUDY



ESRI Canada

GREEN ROOF PROJECT SUMMARY

Type of green roof: Extensive

An extensive green roof has a shallow, light growing medium and the landscaping is designed to be relatively self-sustaining, requiring little maintenance and minimal structural support.

Building Type: Commercial

Total Cost: > \$ 200,000

Eco-Roof Incentive Program funding received (2009): \$35,200

Size of green roof: 704 m²

Cost per square metre: \$285 - \$372

Project timeline:

Design to installation: approx. 18 months
Installation: 2 weeks

Volume of stormwater diverted from municipal system per year (estimate):
393,353 L

GHG emission reductions per year due to diverted stormwater (estimated):
88 kg of CO₂ equivalent

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ESRI Canada

Since 1984, ESRI Canada has been helping customers use geographic information systems (GIS) to make informed decisions and become more sustainable. GIS is used for many applications including climate change analysis, natural resource management and urban development planning.



“When we elected to move forward with our green roof project in 2009, we were in the midst of one of the worst economic crises in recent history. When a company is facing that kind of uncertainty, it seems counter-intuitive to target spending on environmental initiatives. And yet, that’s exactly what we did. We firmly believe that being aware of environmental problems is no longer good enough: substantive action is essential to reducing the global environmental impact. Our green roof is positive proof of ESRI Canada’s commitment to the environment.”

Alex Miller, President and Founder, ESRI Canada

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Quick Facts: Green Roofs

- reduce combined sewer overflow by delaying flow of runoff and filter stormwater;
- extend the lifespan of a roof by two to three times that of traditional roofing systems;

Reference: Gaffin, S.R. et al (2010). A Temperature and Seasonal Energy Analysis of Green, White, and Black Roofs.

- absorb airborne toxins and improve air quality;
- provide habitat for birds, butterflies and other wildlife;
- have the potential to save between 4 and 20 kWh of energy per square metre of green roof coverage per year, depending on the age of the building;

Reference: Gaffin, S.R. et al (2010). A Temperature and Seasonal Energy Analysis of Green, White, and Black Roofs; and consultation with Environment Canada Adaptations & Impacts Researcher Dr. Brad Bass.

- have the potential to cool surrounding air and reduce the ambient air temperature by .1 to 2°C on hot summer days, thereby decreasing the urban heat island effect.

Reference: Krayenhoff, S. and Bass, B. (2003). The Impact of Green Roofs on the Urban Heat Island: A Toronto case study. Report to the National Research Council, Institute for Research in Construction.

*The City of Toronto's Eco-Roof Incentive Program (ERIP) provides funds for green or cool roof retrofit projects on existing commercial, industrial and institutional buildings.

The program also provides funding for green roofs on new industrial buildings with a Gross Floor Area of 2,000 m² (21,528 sq ft) or greater, and new institutional and commercial buildings of less than 2,000 m².

Eligible green roof projects receive \$50 / square metre up to a maximum of \$100,000. Eligible cool roof projects receive \$2 - 5 / square metre up to a maximum of \$50,000.

Funding recipients must meet program eligibility criteria.

Building Characteristics and History

ESRI Canada occupies two floors of a 9-storey, 18,794 m² suburban commercial office building overlooking the Don Valley Parkway. Constructed in 1991 with a concrete slab roof, the building's cladding consists of a unitized insulating glass curtain wall and double-glazed vision panels. When installing the green roof, ESRI Canada also undertook lighting retrofits and a server consolidation.



In September 2009, ESRI Canada unveiled the green roof with a gathering for its employees, customers and partners to celebrate the company's 25 years in business and their commitment to sustainability and environmental stewardship.

Project Description and Background

ESRI Canada chose to install a green roof, which they call "ESRI Canada's Garden in the Sky," as the result of a Ryerson University study that showed widespread greening of building roofs in Toronto could reduce the City's ambient air temperatures up to 2° Celsius. Choosing to lead by example, ESRI Canada created the green roof on the 9th floor terrace of the building, to provide an environmental asset for the city and to demonstrate to their customers, partners and the community that a rooftop garden can help reduce urban heat.

Project Process

ESRI Canada's interior designer researched local landscape architects and their work in the Toronto area. Research was also conducted to determine the types of green roof building materials and systems available. At the time, there were few suppliers with acceptable products. They chose pre-vegetated modules by Live Roof Canada, which are grown locally in Ontario.

“It was an easy decision to partner with ESRI Canada on this environmental project. Crown Property Management is committed to being green and gladly participated with ESRI Canada’s plans to green the 9th floor roof at 12 Concorde Place. The green roof not only improves the environment for their employees, it reduces the energy consumption of the building and improves the environment for the city of Toronto.”

Sheila Williams Osseni, Property Manager,
Crown Property Management

Awards and Recognition

- 2010 Green Roofs for Healthy Cities’ Design Award of Excellence
- 2010 Green Toronto Award – Green Roof category
- 2010 Ontario Association of Landscape Architects’ Certificate of Merit for Service to the Environment
- 2010 Greenroofs.com’s *Love the Earth, Plant a Roof!* Earth Day Photo Contest Winner
- 2009 Design Exchange Award – Honourable Mention

For the landscape design, ESRI Canada reviewed three proposals and chose Scott Torrance Landscape Architect Inc. due to the numerous green roof and urban design projects the firm had completed across the city. Scott Torrance conducted a feasibility study and identified all the requirements for the green roof.

Suppliers were selected through a bidding process. Three green roof installers were asked to provide proposals, from which Gardens in the Sky was selected.

Outcomes

- Provides additional 704 m² of useable space without a corresponding rent increase.
- Provides a visually stimulating workplace environment which improves employee productivity, health and wellness.
- Reduces heating and cooling costs.
- Provides better weather and sound insulation.
- Increases roof lifespan.
- Demonstrates company’s commitment to sustainability, gaining approval from employees, customers, building tenants and the community.
- ESRI Canada developed a video of the green roof project to encourage others to become more environmentally conscious: [youtube.com/watch?v=o25mkIMF47w](https://www.youtube.com/watch?v=o25mkIMF47w). The video, posted on YouTube, has garnered more than 3,000 viewers and has been shown at 17 conferences across Canada.
- ESRI conducts tours of the green roof for journalists, partners and customers to share the lessons learned from this project.
- Publicity: esricanada.com/en_company/1472.asp