

ECOroof

CASE STUDY



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: Institutional

Total Cost: \$1,377,600

Eco-Roof Incentive Program funding received (2009): \$26,550

Size of green roof: 531 m²

Cost per square metre: \$2,594

Project timeline: 6 months

Volume of stormwater diverted from municipal system per year (estimate):
296,691 L

GHG emissions reductions per year due to diverted stormwater (estimate):
67 kg of CO₂ equivalent

Native Child and Family Services of Toronto
30 College St.
Toronto, ON M5G 1K2

Tel: 416-969-8510 ext. 3133
Website: nativechild.org
Contact: Norman Clarke, Facilities Manager

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Native Child and Family Services of Toronto

Native Child and Family Services of Toronto (NCFST) strives to provide for a life of quality, well being, caring and healing for children and families in the Toronto Native Community. It does this by creating a services model that is culture-based, respecting the values of Native peoples, the extended family, and the right to self-determination. NCFST serves Native families and children in the Toronto area, including First Nations, Métis, Inuit and all those of Aboriginal heritage who choose to be served by the agency.



Traditional medicines, food crops, and native flowers, plants and grasses, are prominent features of the new green roof installed by Native Child and Family Services of Toronto.

“The green roof will allow us to significantly enhance our capacity to provide ceremonies and other cultural activities without having to drive 60 kilometres out of the city. This roof brings more cultural options to the heart of the city, and we are excited by not only the current possibilities, but also by what we might be able to do in the future.”

Kenn Richard, Executive Director,
Native Child and Family Services of Toronto



Call **3-1-1**





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

Native Child and Family Services of Toronto is housed in a 4-storey, 2,462 m² building that contains office space and a service/community mall where NCFST provides services to clients, such as the Early Years Centre, Community Kitchen, Youth Program, and reception.

The building was unoccupied and not maintained for a number of years before NCFST purchased it in 2007. Issues included roof leaks, mould and inoperable HVAC systems. As part of the renovations, which included installing a green roof, energy-efficient lighting was installed throughout the building.



The green roof allows NCSFT to host traditional ceremonies and other cultural activities within the city.

Project Description and Background

NCSFT's first priority was to install a new roof membrane that would stop leaks and remain compatible for a future green roof. The green roof was started in 2009 and completed in 2010.

NCFST decided to install a green roof, rather than a conventional roof, to facilitate traditional Aboriginal culture in their urban setting.

Project Process

NCSFT chose a general contractor to handle the full renovation at 30 College Street. The general contractor selected the suppliers and obtained three quotes.



Outcomes

- The green roof allows NCFST to provide traditional ceremonies (e.g. healing/sweat ceremonies, full moon ceremonies, talking/teaching circles) for their clients.
- The green roof features traditional medicines (sage, cedar, sweetgrass and native tobacco), the three sisters (traditional food crops of corn, beans and squash) and native flowering plants and grasses.
- It also includes a play space for children, a sweat lodge, and a fire pit for talking circles and traditional ceremonies.

Cost Breakdown

Tear-off of existing roof and installation of membranes	\$ 151,000
Design fees and engineering reports	85,000
Structural upgrades	595,600
Materials, installation and maintenance <i>(including sweat lodge and perimeter fence)</i>	546,000
Total Cost	\$ 1,377,600

Awards and Recognition

- Design Exchange Awards, Landscape Architecture, Honourable Mention
- Their renovation and green roof have been profiled in the following magazines:
 - Azure (CDN) - October 2010
 - Identity (UAE) - January 2011
 - Interior Design (USA) - January 2011
 - Object (Ukraine) - January 2011
 - On Office (UK) - January 2011
 - Canadian Builders Quarterly (CDN) - January/February 2011
 - Ground Magazine (CDN) – February 2011
 - Hinge (China) - January/February 2011
 - Living Architecture Magazine (CDN) - February 2011
 - Nuvo (CDN) - Spring 2011
 - Attitude (Portugal) - March/April 2011
 - Frame (NL) - March/April 2011
 - Projecto Contract (Spain) - April 2011