

# The GREEN ROOF INFRASTRUCTURE MONITOR

Vol. 2, No.1, Spring 2000

PLEASE POST OR CIRCULATE!

=====

## CONTENTS:

1. COALITION NEWS
  2. LOCAL NEWS
  3. NATIONAL NEWS
  4. INTERNATIONAL NEWS
- =====

### COALITION NEWS

#### About Green Roof Infrastructure and our Business Coalition

Green roof infrastructure provides a wide range of public and private benefits. These extend from improved stormwater management and smog reduction to energy efficiency, cost savings and new amenity space for building occupants. *Green Roofs for Healthy Cities* is a business coalition founded in March 1999 to foster the development of a market for green roof infrastructure.

Green roof development involves the creation of 'contained' green space on top of a human-made structure. This green space can be below, at, or above grade, but in all cases the plants are not planted in the 'ground'. A green roof is an extension of the existing roof, which involves a special root repelling membrane, a drainage system, a lightweight growing medium and plants.

The Members of the Coalition are **Doug Flynn** and **John McManus**, Flynn Canada Ltd.; **William Bean** and **Brian Lambert**, Garland Canada; **Al Duwyn**, IRC Buildings Sciences Group Inc.; **Kaaren Pearce**, De Boer Landscape & Maintenance; **Bill Stensson** and **Manuel Sobrinho**, Sheridan Nurseries; and **Colin Donaldson**, Soprema Inc. Please visit our website at [www.peck.ca](http://www.peck.ca) or e-mail **Steven Peck**, Executive Director, *Green Roofs for Healthy Cities* at [speck@peck.ca](mailto:speck@peck.ca) for membership information.



Welcome to Vol.2, No.1 of the *Green Roof Infrastructure Monitor*, a quarterly report on current and emerging green roof events and opportunities.

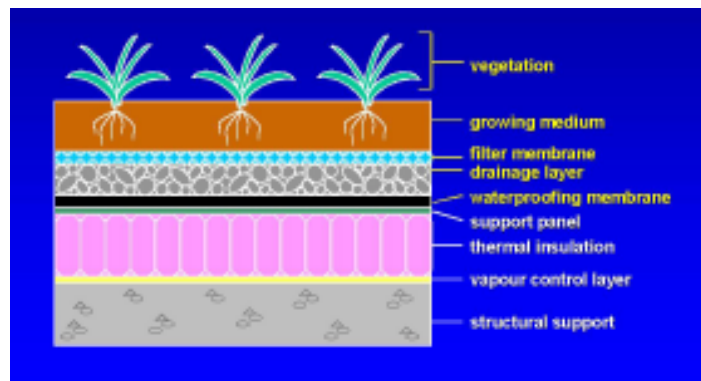
### LOCAL NEWS

#### Toronto's Environmental Task Force Recommends Green Roof Demonstration Project and Assessment of Benefits for City

In February, the City of Toronto's Environmental Task Force (ETF) completed its proposed Environmental Plan, which is scheduled to be presented to City Council for approval on April 10, 11 and 12, 2000. The Plan, entitled *Clean, Green and Healthy: A Plan for an Environmentally Sustainable Toronto*, contains recommendations about goals, targets, policies, strategies, structures and processes that will lead Toronto in the direction of environmental sustainability. Among the 63 recommendations is a recommendation that the City report to Council and a proposed Sustainability

Roundtable before the end of 2000 on a strategy to encourage green roofs and rooftop gardens. More specifically, the Plan recommends that the strategy should:

- a) address the potential for retrofitting green roofs and rooftop gardens on City-owned buildings;
- b) address how green roofs and rooftop gardens can be implemented in new developments; and
- c) address the environmental benefits that can be derived from green roofs and rooftop gardens (e.g., CO<sub>2</sub> reduction, stormwater retention, microclimate improvements, etc.).



Major Elements of a Green Roof Infrastructure System

# The GREEN ROOF INFRASTRUCTURE MONITOR

Vol. 2, No. 1, Spring 2000

In addition, the ETF has recommended that City Council establish an Investment/Reserve Fund to be used to begin implementing the recommendations. Among the list of priority recommendations is the encouragement of green roofs. It is recommended that \$30,000 be allocated for a strategy team to analyze the benefits of green roofs in the City and \$250,000 be allocated for a City Hall demonstration project. It is also recommended that the Toronto Atmospheric Fund be approached as a possible funding partner for this initiative.

For more information about the ETF and the Environmental Plan call (416) 392-3819 or e-mail: [etf@city.toronto.on.ca](mailto:etf@city.toronto.on.ca)

## **Toronto Green Roof Feasibility Study Completed by Steering Committee**

In June of 1999, Toronto's Administrative Services Committee approved of a green roof demonstration project at City Hall in principle, and asked *Green Roofs for Healthy Cities* to work with Facilities and Real Estate to develop a feasibility study. An interdepartmental committee (see below) has recently completed the study, which recommends proceeding with two demonstration sites, one located on a 6,000 square foot portion of the Podium roof at City Hall and a second site located at the Eastview Neighbourhood Community Centre which is scheduled for re-roofing this year. Highlights of each site are presented below.

### **Eastview Neighbourhood Community Centre**

The Eastview Neighbourhood Community Centre demonstration site is located over a gym and is approximately 5,000 square feet in size. The roof at this site is considered to be typical of a large number of buildings in the Toronto area, with a minimum loading capacity. The demonstration green roof will be inaccessible and exten-

sive. *Green Roofs for Healthy Cities*, in partnership with the National Research Council and Environment Canada has applied for over \$300,000 in funding from the Climate Change Action Fund's Technology for Early Action Measures (TEAM) program. The funds will be used to conduct research at this site, develop an interpretive program and model the urban heat island effect in Toronto. The research, to be undertaken over three years, involves installing sensors and monitoring equipment to study benefits such as improved energy efficiency, stormwater retention and quality improvements and the extension of the roof membrane life span. The feasibility of conducting this research will depend on approval of Federal Government funding and approval from the Administration Committee. The cost of the green roof at Eastview can be accommodated within the City's existing capital budget.

### **City Hall Demonstration Site**

The City Hall demonstration site is approximately 6,000 square feet in size. The proposed green roof would be accessible to the public. The demonstration would likely be in place for five years, since the Steering Committee has recommended that the entire podium roof be considered as part of the upcoming design competition for City Hall. The site has multiple benefits and would

serve as an excellent 'on the ground' educational infrastructure. It will help potential green roof clients and industry representatives to improve their understanding about green roof infrastructure technology. A variety of applications at different soil depths and plants communities have been planned. The University of Toronto is also interested in conducting research on water quality and native plant ecology at the site.

The green roof could also provide valuable amenity space for the occupants of City Hall, surrounding buildings,



*Green Roof, Vancouver Public Library, British Columbia*

and the general public. The project will involve replacing a section of the aging roofing system near the flag pole. The entire roof is scheduled to be replaced in 2004. The cost of re-roofing this section of the City Hall roof is \$165,000 and the cost of the green roof demonstration portion is \$120,000. Before this project can proceed, additional funding will be required. The full Steering Committee report is scheduled to go before Administration Committee on April 25, 2000.

#### **Feasibility Project Steering Committee Members**

The Phase I Green Roof Infrastructure Demonstration Project Steering Committee involved a wide number of representatives from different City departments and agencies. The staff and members of *Green Roofs for Healthy Cities* would like to publicly thank all those who contributed their time to the preparation of this report: **Jim Kamstra**, Facilities & Real Estate (Co-chair); **Alka Lukatela**, Urban Design; **Arthur Beauregard** and **David O'hara**, Parks & Recreation; **Bas Baskaran**, **Karen Liu** and **William Lei**, National Research Council, Institute for Research in Construction; **Bill Macdonald** and **Pamela Georgopolous**, Works & Emergency Services; **Brad Bass** and **Monirul Q. Mirza**, Environment Canada, Adaptation & Impacts Research Group; **David Stonehouse**, Urban Planning & Development Services; **George Padanyi** and **Jamie McFadyen**, Facilities & Real Estate; **Lisa Salsberg**, Healthy Cities Office; **Lois Corbett**, Toronto Environmental Alliance; **Lorne Cappe** and **Richard Stromberg**, Heritage Toronto; **Michael McClelland**, ERA Architecture; **Monica Campbell**, Toronto Public Health; **Monica Kuhn**, Rooftop Garden Resource Group; **Monica Tang**, Councillor Layton's Office; **Richard Morris**, **Lai Wong** **Christine Merhej** and **Stephanie Salbach**, Energy Efficiency Office and **Sandra Rodriguez**, Strategic and Corporate Policy, CAO's Office;

#### **European Green Roof Industry Research at Ryerson University**

*Green Roofs for Healthy Cities* is currently overseeing a research effort with a group of senior Urban and Regional Planning students at Ryerson Polytechnic University. The goal of the research project is to collect information on the development and status of a green roof industry in different European and Oceanic countries. The group is also assembling an annotated archive of information pertaining to the benefits and barriers of urban food production on green roofs. For more infor-

mation, please contact Dr. Joe Springer, Professor, School of Urban & Regional Planning, (416) 979-5000, ext. 6766.

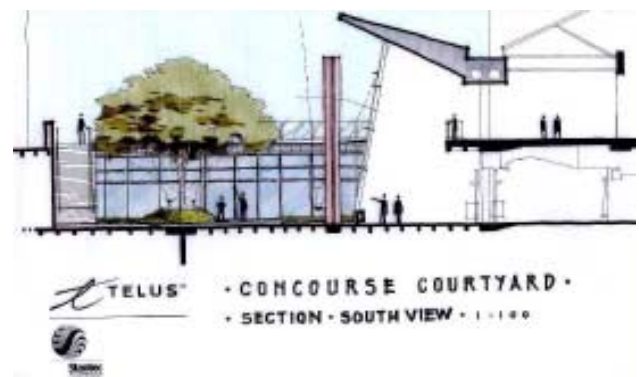
#### **York University to Implement Green Roof for New Computer Building**

Soprema Inc.'s *Sopranature* green roof system will be installed on the roof of the new Computer Science Building at York University. Flat roofs on different levels will be greened as well as a sloped roof of 10 degrees. Included in the design is a wildflower meadow. The green roofs will mainly be inaccessible. The green roofs were designed by Busby and Associates and Architects Alliance from Toronto. York University decided to include a green roof and use Soprema Inc.'s system for a number of environmental reasons, the primary one being the high stormwater retention capacity of Soprema's system. This will help to reduce the evacuation of stormwater, some of which is being stored in basins on the roof. For more information, please contact Marie-Anne Boivin at: maboivin@sopremacanada.com

#### **NATIONAL NEWS**

##### **Green Roof Planned for Edmonton Mall**

This spring, Soprema Inc.'s *Sopranature* system will be used for a garden on the Concourse Courtyard of the Telus Plaza in Edmonton. Architectural and landscaping drawings were done by the Edmonton-based firm, Stantec Architects. The terrace is designed with rectangular sections of low ground cover between spaces of pavers for pedestrians. The centre of the terrace focuses on a big tree and an elevated amount of soil that is also covered by ground cover. (See picture below)



## The GREEN ROOF INFRASTRUCTURE MONITOR

Vol. 2, No. 1, Spring 2000

### IRC Building Sciences Group Inc. Establishes a National Presence

IRC Building Sciences Group Inc. is pleased to announce the opening of a new office in Calgary, Alberta adding to current office locations in Mississauga, Ottawa and London, Ontario. In an effort to provide a truly cross Canada presence for their national clients, IRC Group has undertaken this new expansion to continue to improve the level of services to existing clients as well as the development of new clients throughout Western Canada.

IRC Building Sciences Group Inc. is an unbiased and independent professional consulting firm specializing in building science engineering, focusing predominantly on building performance, evaluation and rehabilitation of commercial, institutional, industrial and residential facilities. For more information, please call Zen Szewczyk, Director of Marketing & Sales at: (905) 607-7244 or toll free at: 1 (888) 607-5245, or by e-mail: zszewczyk@ircgroup.com

### Greenbacks from Green Roofs Report - Now On-line in PDF Format

A report prepared for Canada Mortgage & Housing Corporation on the barriers and opportunities related to expanding the market for green roofs entitled, *Greenbacks from Green Roofs: Forging a New Industry in Canada* is now available on-line as a pdf document at: [www.peck.ca](http://www.peck.ca). Acrobat Reader is required to view the document. To request a hard copy of the report, please contact the Canadian Housing Information Centre by telephone 1 (800) 668-2642 or by e-mail: [chic@cmhc-schl.gc.ca](mailto:chic@cmhc-schl.gc.ca)

### INTERNATIONAL NEWS

#### City of Chicago Implements \$1 Million Green Roof Demonstration

In an effort to explore different ways to reduce the urban heat island effect, the City of Chicago will begin construction of a \$1 million green roof demonstration and laboratory on top of its' City Hall building. The

purpose of the demonstration project is to demonstrate the air quality benefits of green roofs as well as showcase other benefits such as energy efficiency and improved stormwater management. The City expects to save \$4,000 a year from reduced heating and cooling costs. This results from the insulative and cooling properties of the green roof. The roof will allow research to be conducted on the suitability of different plants, specifically species native to the Chicago 'rooftop' climate.



Accessible Green Roof  
Cannon Street Station, London

The City will also be working with the Lawrence Berkeley National Laboratory to better understand the potential of green roofs in improving air quality by reducing the urban heat island effect - the unnatural overheating of the city. Higher city temperatures in the summer contribute to greater air pollution in the form of smog and particulate matter. Higher temperatures also require the use of more energy for cooling buildings. "There are lots of practical and simple techniques for reducing urban heat islands. Green roofs have the added advantage of making the surroundings more attractive,"

said William Abolt, Commissioner of Environment for the City of Chicago.

The Chicago City Hall green roof demonstration project will showcase 3 different soil depths and a variety of plants, including oak trees. The design will green more than 50% of the total City Hall roof and incorporates pathways for maintenance and monitoring. Green roofing is scheduled to begin in April 2000. Planting is expected to take place during late spring or early summer. For more information on the City Hall project, please contact John Beaudry at: [jbeaudry@CI.CHI.IL.US](mailto:jbeaudry@CI.CHI.IL.US)



*Green Roof on a Sloped Roof of a House in Northern Germany*

### **Philadelphia Holds First Urban Agriculture Conference in North America**

On March 6, 2000, the Pennsylvania Horticulture Society held a conference on urban agriculture in Philadelphia. Conference participants explored avenues to improve the economic viability of significantly increasing urban food production. Lauren Baker, Urban Agriculture Coordinator from Toronto's Food Share presented on the Annex Organics' green roof food production system. In a related development, Toronto's Food Policy Council has released a discussion paper entitled, *Feeding the City From the Back Forty*, which includes recommendations on piloting different urban agriculture projects including green roof food production projects. For copies of the report, contact Sean Cosgrove at: [tfpc@city.toronto.on.ca](mailto:tfpc@city.toronto.on.ca)

### **Outstanding Growth of the German Green Roof Infrastructure Industry**

With direct financial investment and regulations requiring green roofs by over seventy local governments, the market for green roof infrastructure in Germany has grown by an average of 10-15% annually over the past decade. In 1999, there were 50 million square metres of green roof infrastructure installed in Germany. This

number represents over 10% of the flat roofed buildings in Germany.

### **Australia's City of Port Phillip Conducts Study on Green Roof Benefits**

Since 1998, the City of Port Phillip has been researching the practical benefits of vegetating urban walls and roofs with funding provided by the State government under an urban design grant. The study, which should be completed in 2000, involves three universities - Monash, Melbourne and Deakin. Various greening strategies will be assessed for their relevance to five broad project objectives: improving indoor and outdoor comfort levels for residents; reducing energy demand for heating and cooling; reducing the quantity and increasing the quality of stormwater run-off; conserving indigenous biodiversity (genetic, species and ecosystems); and encouraging environmentally responsive design strategies in the City. For more information please contact: Terry White, Project Coordinator: [terryw@vicnet.net.au](mailto:terryw@vicnet.net.au).

**For a complimentary subscription to the  
Green Roof Infrastructure Monitor, please  
e-mail Stephanie Tencer, Coalition Coordinator:  
[stencer@peck.ca](mailto:stencer@peck.ca)**