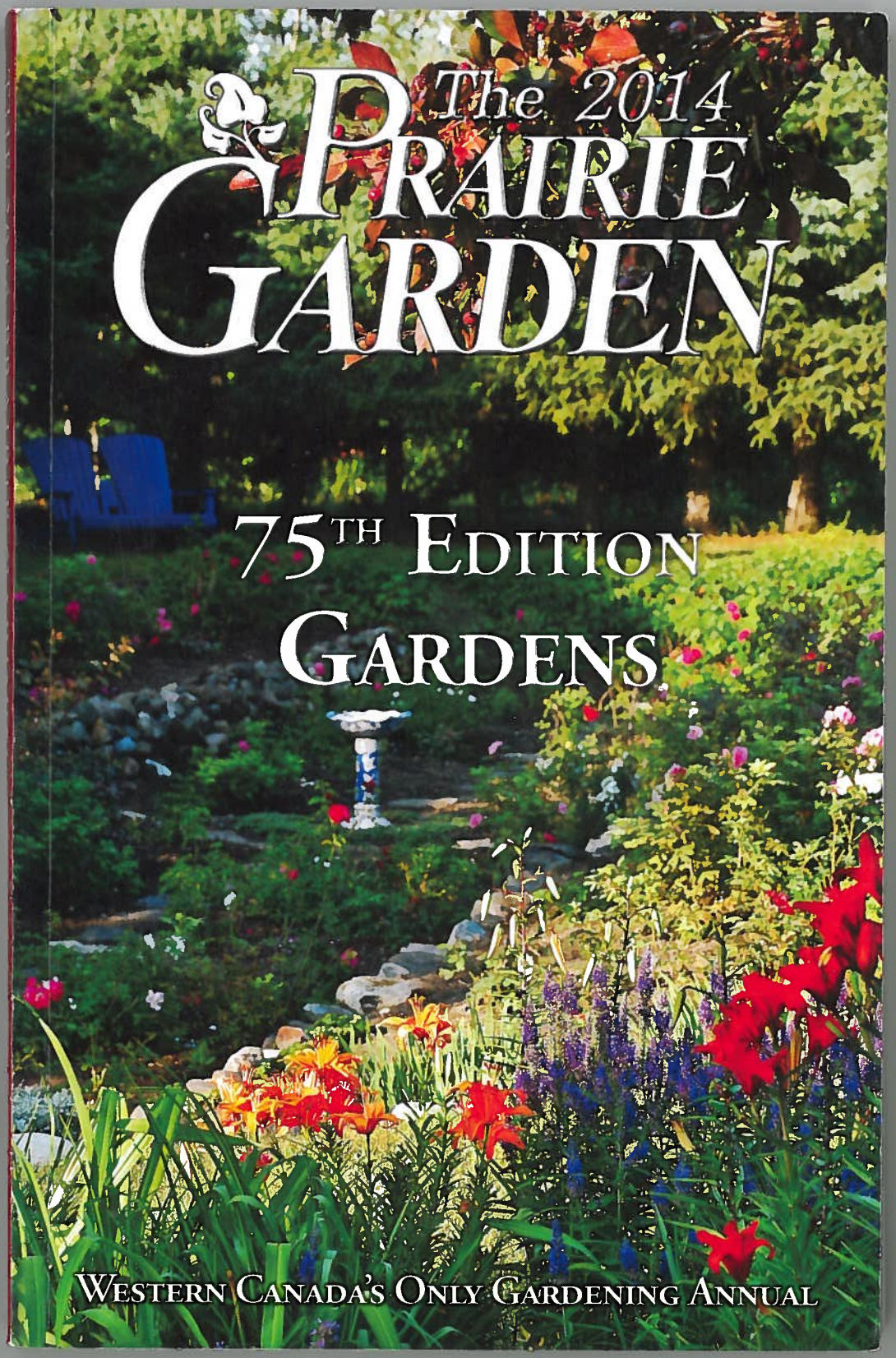
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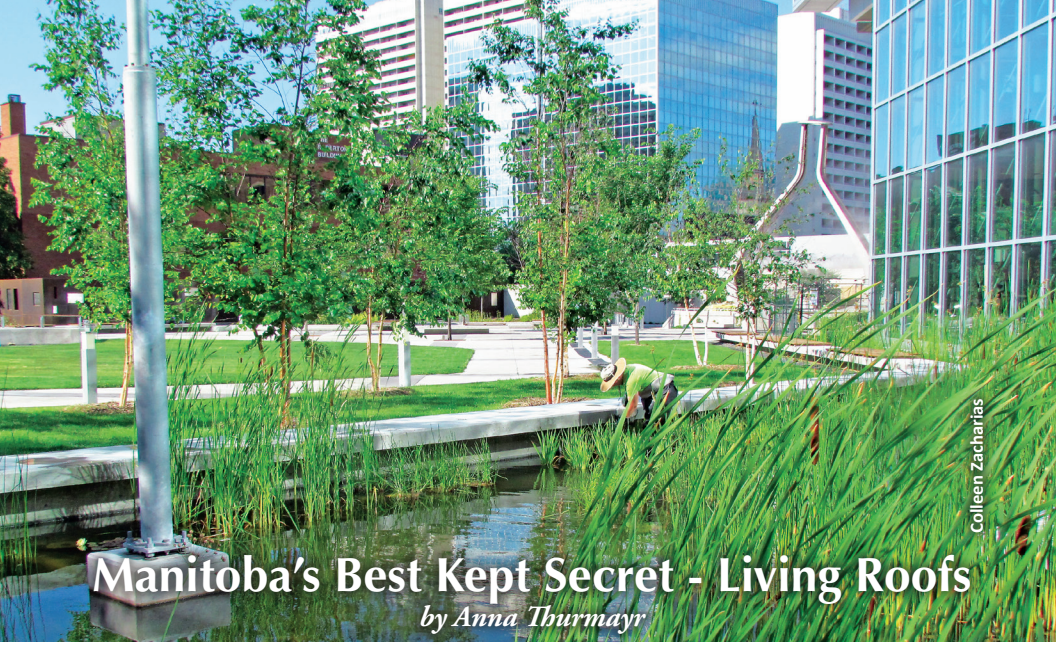

Manitoba's Best Kept Secret - Living Roofs

by Anna Thurmayr

Millennium Library Park built on the roof of the Millennium Library's parkade

Anna is an assistant professor with the Department of Landscape Architecture, University of Manitoba

When you ask people in Winnipeg "How many green roofs do you actually know of in Manitoba?", the standard answer is "Never heard of any!" In Manitoba green roofs or roof gardens are rare and on top of that, most people are not even aware of the ones that do exist.

In Europe technically advanced and certificated green roof systems are widely available and their implementation has become standard. The development of a solid technical base has allowed landscape architects to concentrate on high quality and innovative design. My own professional career began in living roof design 18 years ago. I have been fortunate to work as a design and project manager on several high profile projects which allowed me to explore the possibilities of this innovative approach to landscape design. Would I have had the same chance if I had started my career in Manitoba? Even today, that would be unlikely!

This article will highlight the benefits of green roof installation, discuss their possible promotion, and provide a list of current locations in Manitoba.

Benefits

Green roofs confer a wide range of benefits, many of which have been described and discussed in a variety of publications (FLL 2002, Dunnett & Kingsbury 2008). These include:

- creating new open space for relaxation
- improving the view or access from nearby buildings
- offering an exciting, high profile design opportunity that can boost the environmental credentials of a business
- providing extra insulation for a building; moderating the urban 'heat island' effect, slowing down storm water run-off by retaining moisture and moderating the discharge to sewers which are thus better able to cope in storms.

These benefits are the driving force behind green roof installation.

Vernacular Grass Roofs

Insulation from the extreme cold by grass roof construction is actually not a modern idea. Vernacular grass roofs have been utilized in Scandinavia, parts of Canada and Iceland for many centuries (Werthmann 2007). In 19th century Manitoba for example, Mennonite immigrants built their first homes with sod, soil, grass and wood. The Mennonite Heritage Village in Steinbach, MB still shows a similar construction today. "Although crude these sod buildings provided the shelter necessary for survival on the Manitoba prairies" (Mennonite Heritage Village, undated). Further replicas of the traditional sod house can be visited at the Manitoba Museum and at Fort Whyte Alive, both located in Winnipeg, MB. The insulation ability of the thickly-rooted Prairie grass provided protection from the cold, heat and wind, but as the Manitoba Museum informs its visitors, "Rain was another thing – it was often said that if it rained outside for a day, it would surely rain inside for two." (Fig. 1). The existence of the sod house in Manitoba serves as the first piece of evidence that there is a green roof tradition in the province which goes back many years. It also provides the proof that green roofs can withstand the cold Prairie climate. Following the question of why green roofs or roof gardens are now rare in Manitoba, it is necessary to do research outside Canada.

Manitoba Hydro Place

Lenin

Eco-movement in Europe

In Europe the promotion of roof gardens started as part of the modernist movement in the 1930s and became revitalized with a shift to

green roofs by the eco-movement in the 1980s. The growing awareness of environmental issues became a broad and influential force, which affected public policy in this regard (Werthmann 2007) and the rapid expansion of green roofs in Germany, has been made possible by laws that promote their implementation.

Special nature protection laws in Germany now ensure that developments avoid unnecessary damage to nature or the landscape. Furthermore, any unavoidable damage has to be compensated within a fixed time period. Green-roof installation counts as compensation and is rewarded by incentives in many German municipalities.

A basic tool for the construction of green roofs in Germany is the '*Guideline for the Planning, Execution and Upkeep of Green-Roof Sites*' (FLL-guidelines). The German Landscape Research, Development and Construction Society (FLL), has been working on standards for green roof technology for years and the English translation of their Green Roof Guidelines has been in use since 2004.

The German guidelines cannot be applied directly to North-America, but they do at least provide access to 30+ years of well-established experience and information.

Current Promotion in Canada

Many municipalities around the world have been creating green roof strategies over the last few decades.

Colleen Zacharias

Winnipeg Art Gallery

"Toronto is the first city in North America to have a bylaw that requires and governs the construction of green roofs on new development … The Bylaw requires green roofs on new commercial, institutional and residential development with a minimum gross floor area of 2,000m2 as of January 31, 2010. Starting April 30, 2012, the Bylaw will require compliance … for new industrial development." (Toronto 2009).

Additionally, "Toronto Building has prepared a guideline document to the green roof construction standard in consultation with the City's Green Roof Technical Advisory Group. The document contains 'best practices' in green roof design, provides designers and the public with additional information on the Toronto Green Roof Construction Standard and contains illustrations to assist with calculating required green roof coverage." (http://www.toronto.ca/greenroofs/construction-standards.htm)

Toronto's new Green Roof Bylaw and the Supplementary Guidelines will result in a push towards green roofs and roof terraces construction under the North American sky.

Just imagine the consequences of such a development in Winnipeg! Not yet possible? It is actually not so far off since a proactive and forward thinking study, researching the feasibility of a Green Roof Strategy for Winnipeg and published in 2003, already exists. "This study focused on quantifying the benefits of green roofs as a storm water management tool in combined sewer districts of the City's inner core area. In doing so the authors took an inventory of the available and suitable building stock and set out the following recommendations for the City of Winnipeg:

- Construct two publicly accessible green roofs.
- Develop guidelines and policies to encourage green roofs.
- Increase the number of green roofs in the city.
- Create incentive programs and a municipal procurement policy.
- Create public-private partnerships with identified organizations.

Design guidelines are also included in this strategy" (Bertram, Flavia 2007). Considering the many arguments and recommendations given in this study, a commitment to foster green roofs in Winnipeg might be just one step away.

Word of Mouth

Due to the current lack of green roof standards in Manitoba, local projects tend to be custom-made solutions. They are individually developed and their research goal and outcome, if there is any, is not based on commonly accepted definitions, requirements and testing methods (Philippi, undated), therefore, they cannot be related to each other. Some websites give project information, but an updated synopsis of green roofs and roof gardens in Manitoba is missing. In order to fill the gap this article provides a list of projects known by insiders only until now. I heard about these projects talking with friends, colleagues and landscape architecture students. Neither the catalogue nor the information claims to be exhaustive but at least it provides a name and location.

The growing green roof market needs local references. It is time to highlight the projects as an ensemble, to recognize the engagement of their designers, investors and construction firms and to learn from their experiences. Further research in the Prairies is necessary and this will give me the opportunity to continue with what I started in my career, namely exploring green roofs and roof gardens.

To give away a secret for now, the table on the next page contains eleven green roofs and roof gardens in Manitoba at a glance:

…more living roofs to come.

Editor's note: See The Prairie Garden's 2011 Healthy Gardening, page 123, **Rooftop Gardening** by George Shirtliffe.

Eleven Green Roof Gardens in Manitoba	
Name	**Comment**
Southwood Green Condominium	Roof Garden covering an underground parking garage
Winnipeg Art Gallery	Large outdoor courtyard on the top of the building. Roof Garden planting includes trees, shrubs, seasonal flowers and a large reflecting pool and fountain.
Millennium Library Park	Roof Garden partially covering an underground parking garage. Planting includes trees, shrubs and a large reflecting pond.
Ducks Unlimited Canada National HQ & Oak Hammock Marsh Interpretive Centre, north of Winnipeg, MB	Two-tiered roof garden with terrace accessible for visitors, one roof level containing shallow-rooted native prairie grasses
Red River College	Small green roof demonstration site developed and maintained by students of the Greenspace Management Program, Red River College
Mountain Equipment Co-op (MEC)	Roof garden with employee patio
Place Louis Riel Suite Hotel	Green roof with employee terrace
North Centennial Recreation Centre	The project includes 2 green roofs, slope 20-40%.
Grand Beach and Birds Hill Park Provincial Park, MB	Green roof on top of beach sheds
University of Manitoba's Alternative Village, Fort Garry Campus	Green roof trial developed as part of a master thesis, Department of Landscape Architecture, University of Manitoba
Manitoba Hydro Place	Roof garden with employee terraces on third level
Museum of Human Rights	Green roofs sloping from ground level to upper parts of the museum (Museum's roots). Under construction in 2013
Misericordia Health Centre	Roof top terrace with planters. Under construction 2013
All gardens in located in Winnipeg, MB unless otherwise noted	

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Mennonite Heritage Village in Steinbach, MB

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