Bringing biodiversity to the heart of the city

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Recent biodiverse green roof installations support pollinators

Top left: CIBC Square at 81 Bay Street.
Top right: Waterworks Building at 505 Richmond Street.
Bottom right: 3300 Bloor Street West. Biodiverse/intensive green roofs by **LiveRoof® Ontario** are re-establishing pollinator gardens in the heart of the city. liveroofontario.ca

Recent installations of vegetated roofs in downtown Toronto are examples of how **LiveRoof® Ontario** is bringing biodiversity back to the city. A biodiverse vegetated roof is either intensive or semi-intensive (according to GRHC definitions), with a minimum growing medium depth of 150mm. It is also feasible to create a biodiverse green roof with only 108mm of growing medium, but that is highly dependent on site conditions and commitment to regular supplemental watering.

Sedum-based green roofs are only suitable for use in locations with at least three hours of direct full sunlight. They perform poorly in shade. Biodiverse plantings, on the other hand, can be designed site specific for full-sun, semi-shade and full-shade applications. They consist of a mixture of native and adaptive species of plants, the community of which consists of at least four families, five genera and 11 species, with at least half to be native to the Great Lakes basin.

The minimum density of the native species in the plant mix should average at least two plants total per square metre throughout the vegetated roof area, and total plant density should be at least 11 plants/m^2 in order to provide the plant coverage required for success.

Broadening the selection of plants in vegetated roofs allows the plantings to attract invertebrates, birds, and insects thereby establishing the conditions for a pollinator garden. Pollinators need a continuous source of food so the plant mixes incorporate at least two flowering species in each of the three growing seasons, spring, summer and fall. Retaining plant coverage throughout the winter provides shelter for overwintering invertebrate species and also prevents soil erosion.

Helping to manage stormwater run-off has been well recognized as a main benefit of vegetated roofs, especially in built-up urban areas. For example, all Tier 2 applications under the Toronto Green Standard (TGS) V3 Alternative Compliance Pathway, including low rise, mid high rise, non-residential and City-owned new developments, must retain a minimum of 10 mm depth of rainfall from all horizontal site surfaces through infiltration, evapotranspiration, water harvesting and reuse for every rainfall. Since not all surfaces can be covered with vegetated roofs, the TGS acknowledges that this requirement can also be met by:

- A Green (vegetated) Roof covering at least 80% of Available Roof Space;
- An Intensive Green Roof for 80% of the Green Roof Area provided; or by a
- Biodiverse green roof to support pollinator species covering a minimum of 50% Green Roof Area;

Several recent **LiveRoof® Ontario** projects - located at 3300 Bloor Street West, CIBC Square at 81 Bay Street, and the Waterworks Building at 505 Richmond Street West - all incorporate biodiverse green roofs. The diversity of plants attracts and assists the re-establishment of species of insects, invertebrates, birds and other animals that have not lived in any great numbers in the city core for many years. And, at the same time, these vegetated roofs provide stormwater control services difficult to achieve in a dense city core in other ways.

LiveRoof® Ontario has supplied vegetated roofs for many buildings across Ontario, both on government and private projects, including multiple hospital projects across the province, retail shopping facilities across the GTA and many offices and condo buildings in Toronto, the GTA and Ottawa, as well as multiple transit projects across the GTA.

Contact us for your next project
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