

Green Roofing 101: Toronto's Green Roof Bylaw

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Beginning 2010, residents of Toronto will be seeing a newer and greener Toronto as Toronto is the first city in North America to pass a bylaw requiring the construction of green roofs on new developments.

This article will give a brief overview on the impact of Toronto's Green Roof Bylaw on new residential, commercial, institutional, and industrial developments.

What is a green roof?

A green roof is a roof surface that supports the growth of vegetation over a substantial portion of its area for the purpose of water or energy conservation. It is comprised of a waterproofing membrane, drainage layer, organic growing medium (soil) and vegetation.

Green roofs provide significant economic benefits, particularly in the areas of storm water management, reducing the urban heat island effect and associated energy use for cooling, enhancing bio-diversity, and improving air quality. Cool roofs (which we will later discuss) also help to reduce the urban heat island effect through its high solar reflectivity and thermal emissivity. Cool roofs consist of a coating applied over an existing roof or a new single-ply waterproofing membrane.

Who is required to build a green roof?

Toronto's Green Roof Bylaw applies to building permit applications made after January 31st, 2010 for new commercial, institutional and residential developments which contain a minimum gross floor area of 2,000 m². Effective January 31, 2011, the Bylaw will also apply to building permit applications for new industrial developments.

Depending on the size of the commercial, institutional or residential building, the required size of the green roof varies from 20% to 60% of the Available Roof Space as further detailed in the table below. Available Roof Space is defined as the total roof area minus areas designated for renewable energy, private terraces and residential outdoor amenity space (to a maximum of 2 m²/unit). A tower roof on a building with a floor plate less than 750 m² is also excluded from available roof space.

Gross Floor Area (Size of Building)	Coverage of Available Roof Space (Size of Green Roof)
2,000-4,999 m ²	20%
5,000-9,999 m ²	30%
10,000-14,999 m ²	40%

15,000-19,999 m ²	50%
20,000 m ² or greater	60%

The size of green roofs for new industrial buildings which contain a minimum gross floor area of 2,000 m² will be required to be the lesser of 10% of Available Roof Space or 2,000 m². This requirement does not affect industrial buildings constructed prior to January 31, 2011.

Are there any exceptions?

Residential buildings less than 6 stories or 20 meters in height are exempt from the requirement to build a green roof. For buildings where a green roof is required, developers may apply for a variance or an exemption. A variance allows for a smaller green roof than what is required under the Bylaw provided that a cash-in-lieu payment of \$200.00 per m² is made for the reduced green roof area. Where an applicant seeks a complete exemption from the green roof requirement, the applicant may apply to City Council and a cash-in-lieu payment of \$200.00 per m² must be made if approved.

Is there any financial assistance available?

The City of Toronto has implemented an Eco-Roof Incentive Program which is designed to promote green and cool roofs on commercial, industrial and institutional buildings in Toronto. The program provides funds for green or cool roof retrofit projects on existing commercial, industrial and institutional buildings and for 2010, will also provide 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 less than 2,000 m². Eligible green roof projects will receive \$50 per m² up to a maximum of \$100,000. Eligible cool roof projects will receive \$2 to \$5 per m² up to \$50,000.

Applications are available online and the key dates for the fall session will soon be posted on the City of Toronto website. Priority will be given to buildings located in the City's designated "employment district" which are areas where the urban heat island effect is of particular concern.

It is important for developers building in Toronto to educate themselves on the requirements under the Toronto Green Roof Bylaw as the design, construction, and maintenance of green roofs must be in accordance with the Toronto Green Roof Construction Standard. Knowing the effective date may also motivate industrial building developers to construct industrial building or building additions prior to January 31, 2011. Although construction of a green roof is not required to existing buildings, existing building owners may also wish to learn more about green roofs because it applies to new additions, and in order for owners to benefit from the financial incentives available under the Eco-Roof Incentive Program.

For further information on green roofs and other helpful resources, please see <http://www.toronto.ca/greenroofs/>.