STAFF REPORT
ACTION REQUIRED

Update and Revisions to the Eco-Roof Incentive Program

<table>
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<tr>
<th>Date</th>
<th>January 18, 2010</th>
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<tr>
<td>To</td>
<td>Executive Committee</td>
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<tr>
<td>From</td>
<td>Director, Toronto Environment Office</td>
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SUMMARY

The purpose of the Eco-Roof Incentive Program, launched in March of 2009, is to provide incentives to commercial, industrial and institutional (ICI) property owners so that Toronto’s building stock becomes more sustainable and better adapted to climate change. The program implements directions from the City’s Climate Change Action Plan and complements the City’s Green Roof Bylaw and the Green Standard by encouraging owners of existing buildings to retrofit their roof space. The Eco-Roof Program provides financial incentives towards the construction of green roofs that support vegetation and cool roofs that reflect the sun’s thermal energy.

In 2009, 49 Eco-Roof applications were received, 42 of which were approved for funding. A total of 66,069 square meters of green and cool roof area was approved with a combined funding allocation of $762,089.00.

The purpose of this report is to provide an update on the status of the Eco-Roof Incentive Program and to provide a review of proposed revisions to the program terms of reference prior to its next funding round March 1, 2010. Revisions proposed to the Eco-Roof Incentive Program will ensure the program is consistent with the standards set in the Green Roof Bylaw and the Green Toronto Standard and will address issues that arose in the first year in criteria for eligibility, specifications and protocols for verification.
RECOMMENDATIONS

The Director of the Toronto Environment Office recommends that:

1. City Council adopt the revised terms of reference set out in Appendix III to this report, to be applied as the selection criteria for the Eco-Roof Incentive Program;

2. The Director of the Toronto Environment Office be authorized to make future refinements to the Eco-Roof Incentive Program and amendments to the terms of reference set out in Appendix III; and

3. Any refinements to the Eco-Roof Incentive Program and amendments to the terms of reference set out in Appendix III be reported, along with an update on the status of the program, in an annual report to the Executive Committee.

Financial Impact

The recommendations of this report have no financial impact beyond what has already been approved in the current year’s budget.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

In July 2007, City Council adopted the Climate Change, Clean Air and Sustainable Energy Action Plan (the Climate Change Action Plan) which included a direction to establish a program to support property owners in making their roof space more environmentally friendly.

In December 2007, City Council considered as part of the Capital Budget process a report entitled, “Climate Change Action Plan – Implementation of Key Program Initiatives”, which included requested funding of $2.4 million over five years (2008-12) to establish an Eco-Roof Incentive Program. That request was approved and in December 2008 City Council endorsed the terms of reference for the Eco-Roof Incentive Program (http://www.toronto.ca/legaldocs/mmis/2008/pg/bgrd/backgroundfile-16869.pdf), which was officially launched in March 2009. The goal of the program is to encourage the retrofit of commercial, industrial and institutional (ICI) buildings with more environmentally sustainable green and cool roofs.

When City Council adopted the terms of reference for the Program, it directed that the Director of the Toronto Environment Office provide annual reports to the Executive
Committee on the status and outcomes of the program and identify any changes required in the delivery of the program. This report addresses that direction.

ISSUE BACKGROUND

The City of Toronto is a recognized global leader in sustainability and reducing greenhouse gas emissions because the City and its residents and businesses have been willing to undertake the actions required to address climate change. Included in the Climate Change Action Plan is a recognition that for Toronto to achieve its environmental goals there must be continued efforts to help residents and businesses make changes in how they operate their homes and businesses.

The Eco-Roof Incentive Program provides a financial incentive to support owners of existing industrial, commercial and institutional buildings in making their buildings more sustainable through the addition of green roofs (roofs that support vegetation) or cool roofs (roofs that reflect the sun’s thermal energy). The goal is to help address the important issues of the urban heat island and stormwater management. By targeting building retrofits, the program also supports the objectives of the Green Economic Development Strategy and the Climate Change Adaptation Strategy by making our building stock more sustainable and resilient to increasing surface temperatures and more frequent and intense rainfall events.

The Eco-Roof program built upon the Green Roof Strategy adopted by City Council in 2006 and the successful Green Roof pilot incentive program, delivered in 2006 and 2007 and complements the Toronto Green Roof By-law (By-Law 583-2009), adopted by City Council on May 26, 2009, and the revised Toronto Green Standard, adopted by City Council on October 27, 2009. The Toronto Green Standard is a set of performance measures to make buildings more sustainable, including stormwater management, energy efficiency, biodiversity enhancement and urban heat island reduction. As of January 31, 2010, all new planning applications are required to meet the Tier 1 environmental performance measures of the Toronto Green Standard. The Green Roof By-law which comes into effect on January 31, 2010, governs the construction of all green roofs and requires their construction on most new commercial development and will require it on new industrial buildings in January 2011.

The Eco-Roof program had two funding rounds in 2009, with the first round closing on May 1 and the second on September 11. In 2009, 49 applications were received, 42 of which were approved for funding. A total of 66,069 square meters of eco-roof area was approved with a combined funding allocation of $762,089.00. Please see Appendix I and II for a detailed list of grant recipients and locations.
COMMENTS

To be eligible for funding, proposed projects must be in compliance with the terms of reference adopted by City Council in December 2008. With adoption and implementation of the Toronto Green Standard and the Green Roof Bylaw some changes are required in the specifications of the Eco-Rooftop Program to make the program consistent with these two requirements. Program staff have also identified, based on the experiences of the first year, modifications that will make the program more effective and efficient. The proposed changes are discussed below.

Proposed changes to the Eco-Roof Program Terms of Reference

a. New institutional and commercial construction should not be eligible for funding

The Green Roof Bylaw requires the inclusion of a green roof in all new construction on institutional and commercial buildings that have 2,000 square metres or greater of ground floor area (GFA). For new development, the Toronto Green Standard requires that buildings not covered under the green roof bylaw provide a green roof or a cool roof or a combination of the two. This ensures that all new development will address the type of roof being provided to take into consideration urban heat island mitigation. Therefore, new construction should no longer be eligible for incentive funding.

b. New industrial construction should remain eligible until January 2011

To be consistent with the phased approach of the Green Roof Bylaw and to support the objectives of the Green Economic Development Strategy, new Industrial Buildings, as defined in the Green Roof By-law, should be eligible for green roof funding through the Eco-Roof Program until January 2011.

c. Modify the Minimum Coverage Requirements for Green Roofs

The Green Roof Bylaw has set the minimum coverage requirements for green roofs at 20% for commercial and institutional buildings and 10% for industrial buildings. This was done to support the installation of green roofs on larger buildings. The minimum coverage requirements in the Eco-Roof Program for green roofs should be lowered from the current 50% to be consistent with the requirements outlined in the Green Roof Bylaw.

d. Eliminate or Modify Redundant Performance Requirements

With adoption of the Green Roof Bylaw some of the required green roof performance requirements in the Eco-Roof Program became redundant because they are now required as part of the Green Roof Construction Standard. These requirements should be removed from Eco-Roof Program performance requirements and applicants be made aware of the Green Roof Construction Standard.
Standard. These performance criteria will be refined on an annual basis to ensure consistency with these standards.

The changes to the performance criteria are outlined below and presented in detail in the terms and reference in Appendix III:

- The definition of a Green Roof has been modified to coincide with the definition contained in the Green Roof By-Law.
- The Toronto Green Roof Construction Standard sets out the minimum requirements for the construction and maintenance of Green Roofs. The standard includes specifications for vegetation performance, slope stability and a maintenance plan. As the Eco-Roof program requires compliance with the standard, these three elements have been removed from the performance requirements and terms of reference.
- The Stormwater Runoff Calculation and Stormwater Management Report have been eliminated from the program requirements as these are not requirements of the Green Roof Construction Standard and have proven to be an impediment to applicants.

**e. Modify Verification Requirements**

Prior to issuing payment, in order to ensure compliance with the terms and conditions of the Eco-Roof Program, the Eco-Roof Coordinator conducts a verification inspection, involving a site visit. With the Green Roof By-law, all green roof projects will be required to have a building permit which involves an inspection. Therefore, it is recommended that site inspections of green roof installation be no longer be a requirement but rather provision of proof of appropriate building permit and inspections will be required as a condition of payment.

With respect to cool roofs, in order to make better use of limited staff resources, it is recommended that the verification protocol be modified by requiring a pre-construction photo as part of the application process, and a post-construction photo required prior to issuing payment. Program staff will advise applicants that while they will not conduct site inspections of all cool roof projects, they will randomly select 20% of the projects approved for funding for site inspections.

Signed documentation verifying that the installed green or cool roof has been completed in accordance with the terms and conditions of the Eco-Roof Program, provided by the contractor should still be required as part of the verification process.

**Other Program Changes**

**a. Modify Application Process**
In order for the project team to better evaluate the benefits of the proposed eco-roof for public education and awareness, the revised application will require a more complete project description. This will include a description of the building and occupying business or institution, along with an explanation of why they are proposing to install an eco-roof. For successful candidates, this information will also be published on the website, along with photos of the completed green or cool roof.

Changes to the website will include new functionality to allow online submission of applications, as well as the ability to upload files and photos. A pre-construction photo will be required as part of the application process, and a post-construction photo required prior to issuing payment to facilitate the verification process.

The 2010 funding round will begin accepting applications as of March 1, 2010, with the application deadline on April 2, 2010, and a completion deadline of December 31, 2010. The second round of funding will be initiated in the Fall of 2010. Approved projects in this round of funding will have a project completion deadline of May 31, 2011.

b. Expand Communications and Outreach

A communication strategy is currently in development with a more targeted approach to the employment areas. One such targeted project is Cool Roofs Rexdale, an initiative of Partners in Project Green. Partners in Project Green, coordinated by the Toronto Region Conservation Authority, is a growing community of businesses working together to green their bottom line by creating an internationally-recognized 'eco-business zone' around Toronto Pearson International Airport. The objective of the Cool Roofs Rexdale program is to promote economic investment, environmental improvements and job creation in one of Toronto’s priority neighbourhoods. By combining a number of existing government programs, including the City of Toronto’s Eco-Roof Program and support from Toronto Employment and Social Services, the Cool Rexdale Program will help create new job opportunities for young people from the Rexdale community, address the effects of the urban heat island, and encourage re-investment into the area’s industrial and commercial building stock.

A coordinated outreach approach with Toronto Planning, Economic Development and Toronto Building will ensure broad outreach of the Eco-Roof Incentive Program for retrofits and the Green Roof By-law for new construction. Strategies include sending a press release to targeted trade publications; distributing program material and key messages to associations reaching those in construction, architecture, roofing and sustainable development; educating various roofing manufacturers on program specifics, and coordinating messaging and awareness among City Divisions, buildings and staff.
Summary

With the adoption and implementation of the Toronto Green Standard and the Green Roof Bylaw changes to the specifications of the Eco-Roof Program have been identified to ensure consistency with these two requirements. Program staff have also identified modifications that will make the program more effective and efficient.

The proposed modifications are summarized below and are outlined in the terms of reference found in Appendix III:

- Recommend that new institutional and commercial construction are not eligible for funding;
- Recommend that new industrial construction remain eligible until January 2011;
- Modify the minimum coverage requirements for green roofs;
- Eliminate or modify the redundant performance requirements;
- Modify the verification requirements and application process; and
- Expand communications and outreach.

CONTACTS

Kristina Hausmanis, Senior Environmental Planner, Toronto Environment Office
Tel: 416-397-0311, Email: khausma@toronto.ca

Mark Bekkering, Manager Implementation and Support, Toronto Environment Office
Tel: 416-392-8556, Email: mbekker@toronto.ca

____________________________
Lawson Oates
Director, Toronto Environment Office

ATTACHMENTS

Appendix I: 2009 Approved Eco-Roof Applications
Appendix II: Map of Projects Supported by the Eco-Roof Incentive Program
Appendix III: Proposed Terms of Reference for the Eco-Roof Incentive Program
## APPENDIX I: 2009 Approved Eco-Roof Applications

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Property Owner</th>
<th>Address</th>
<th>Eco-Roof Area</th>
<th>Approved Grant</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cool Roof - Coating</td>
<td>YCC 484</td>
<td>2300 Finch Ave West</td>
<td>10000</td>
<td>$ 20,000</td>
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<td>Cool Roof - Coating</td>
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<td>1632937 Ont. Inc</td>
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<td>Cool Roof - New Membrane</td>
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<td>Cool Roof - New Membrane</td>
<td>Evergreen Brick Works</td>
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<td>Cool Roof - New Membrane</td>
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<td>Hudson Movers Ltd.</td>
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<td>Cool Roof - New Membrane</td>
<td>MTCC 659 - c/o Zoran Properties</td>
<td>32 Goodmark Place</td>
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<td>Cool Roof - New Membrane</td>
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<td>Cool Roof - New Membrane</td>
<td>University of Toronto</td>
<td>105 St. George St</td>
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<td>Cool Roof - New Membrane</td>
<td>Don Valley Volkswagen</td>
<td>1695 Eglinton Ave East</td>
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<td>Cool Roofs - New Membrane</td>
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<td>850 Tapscott Road</td>
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<td>Cool Roofs - New Membrane</td>
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<td>Cool Roofs - New Membrane</td>
<td>Toronto Cricket Skating and Curling Club</td>
<td>141 Wilson Ave</td>
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<td>Cool Roofs - New Membrane</td>
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<td>1265 Military Trail</td>
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<td>Green Roof - New Building</td>
<td>6884709 Canada Limited (Shoppers Drugmart)</td>
<td>970 Queen Street East</td>
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<td>Dundas and Parliament Development Corporation (One Cole)</td>
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<td>17 Broadway Ave</td>
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<td>Green Roof - Retrofit</td>
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<td>Green Roof - Retrofit</td>
<td>Riverdale Immigrant Women's Enterprises</td>
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<td>882</td>
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APPENDIX II
Map of Projects Supported by the Eco-Roof Incentive Program

Projects Supported by Toronto's Eco Roof Incentive Program 2009
APPENDIX III

TERMS OF REFERENCE FOR THE CITY OF TORONTO
ECO-ROOF INCENTIVE PROGRAM

Administration
1. The Eco-Roof Incentive Program ("the Program") will be administered by the Toronto Environment Office of the City of Toronto ("the City") with the support of the following City Divisions during the review of applications: Toronto Water, City Planning and Toronto Building.

Program Application
2. An Eco-Roof is defined as a cool roof or a green roof as per the eligibility criteria described in section 4. The Eco-Roof Incentive Program applies to:
   - any above grade green or cool roof. Parking garages and at-grade roofs are ineligible;
   - any green or cool roof on an existing industrial, commercial or institutional building within an employment district in Map 2 of the Toronto Official Plan;
   - any green roof on a new commercial or institutional building with a GFA of greater than 10,000 m² (107,600 sq ft) or greater
   - any green roof on a new industrial building with a ground floor area (GFA) of 10,000 m² (107,600 sq ft) or greater.

Selection of Participants
3. The City wishes to make financial incentives available under this Program on a fair basis to a broad range of eligible applicants and, for this purpose, the City reserves the absolute right to limit the approval of applications and/or funds granted in such a manner as to ensure no single applicant or property owner receives a disproportionate share of Program funds, notwithstanding there may be available Program funds or that all funding eligibility requirements have been met by the Applicant.

By signing this Application, the Applicant acknowledges and agrees that the selection and approval of an application for a Program grant is in the absolute discretion of the City, and that the City has reserved rights to limit the number of grants approved and the manner of grant approval on such grounds and conditions as it deems in the best interests of the public. Without limiting the foregoing, where the number of eligible grant applications received exceeds available program funding, the Director of the Toronto Environment Office shall have the absolute discretion in the selection and approval of applications subject to such selection criteria as may be established by City Council.

Eligibility Criteria
4. To be eligible for consideration for participation in the Eco-Roof Incentive Program, a building must be located in the City of Toronto and meet the Green Roof or Cool Roof specifications of section 4.1, Requirements of Participation and other terms and conditions of this Program:
4.1 Green Roof Specifications

(a) “Green Roof” means a roof surface that supports the growth of vegetation over a substantial portion of its area for the purpose of water conservation or energy conservation. (City of Toronto Act, 2006, c. 11, Sched. A, s. 108 (3)). It is comprised of a waterproofing membrane, drainage layer, organic growing medium (soil) and vegetation {an extension of an above Grade roof, built on top of a human-made structure, that allows vegetation to grow in a growing medium and which is designed and maintained in accordance with the Toronto Green Roof Construction Standard (Toronto By-law 583-2009}).

(b) To be eligible for consideration for participation in this Program each applicant must demonstrate that the proposed Green Roof:

(i) shall have continuous coverage of growing media measuring at least 50% 10% of the ground floor area of the building for industrial buildings, and at least 20% for commercial and institutional buildings;

(ii) shall have a vegetation mix (as opposed to a monoculture) and a sustainable organic growing medium that replenishes nutrients and retains moisture;

(iii) shall have in place anti-sheer measures when the slope is in excess of 20% (11 degrees);

(iv) shall be designed and constructed in conformance to the requirements of the Toronto Green Roof Construction Standard.

(c) The City reserves the right to request additional supporting documentation demonstrating that the materials meet the above specifications.

4.2 Cool Roof Specifications

(a) “Cool Roof” means a roofing system with high solar reflectivity and thermal emissivity to reduce the urban heat island effect and can be either a coating applied over an existing roof system or a new single-ply waterproofing membrane that meets the performance specifications outlined below.

(b) To be eligible for participation in this Program and the Cool Roof incentive, each applicant must demonstrate that the proposed Cool Roof:

(i) shall have an area that covers 100% of the roof area of the building, excluding mechanical equipment or other environmental technologies.

(ii) shall have a roof material or coating system that has a minimum Solar Reflectance Index (SRI) rating of:

a. 78 for low sloped roofs. Low sloped roofs have a surface slope less than 16.7% (9.5 degrees).

b. 29 for steep slope roofs. Steep sloped roofs have a surface slope greater than 16.7% (9.5 degrees) and less than 41.7% (22.6 degrees).
c. shall have an emissivity greater than 0.9 and an initial solar reflectance of 0.65 (equivalent to an SRI of 78)

(iii) shall be comprised of material that is asbestos and mercury-free and emits zero volatile organic compounds (VOCs) and ozone depleting substances (ODSs).

(c) The City reserves the right to request additional supporting documentation demonstrating that the materials meet the above specifications.

Requirements of Participation
5. (a) Application and Supporting Documentation - No application will be accepted or approved unless the applicant has submitted the following:

5.1 Green Roof Applications:
   i. detailed plans of the proposal showing percentage coverage, plant material and type of growing medium and construction details;
   ii. a storm water runoff calculation report for the proposed design for projects over 500 square metres; copy of the maintenance plan as required in the Toronto Green Roof Construction Standard;
   iii. a maintenance contract or equivalent assurance for 5 years on projects over 500 sq m; and
   iii. the completed and compliant Eco-Roof Application form.

5.2 Cool Roof Applications:
   i. detailed plans of the proposal showing percentage coverage, cool roof materials and manufacturer documentation and construction details;
   ii. a 5 year maintenance plan and contract or equivalent assurance including:
      o an annual roof condition assessment and resulting maintenance; all subsequent roof maintenance must meet the cool roof specifications as outlined in the terms and conditions;
      o at minimum, an annual roof cleaning;
      o if applicable, re-coating of cool roof spray as per the life expectancy of the material or site conditions;
      o the inclusion of all maintenance recommendations provided by the manufacturer or materials supplier; and
   iii. the completed and compliant Application form.

(b) Compliance with Specifications and other Program Requirements – All applicants participating in this Program shall comply with all specifications and other requirements set out in this Application to be eligible for payment of any funds by the City.

(c) Compliance with Laws - All applicants shall comply with all applicable laws, by-laws, regulations, orders, directives, requirements and policies of the federal, provincial and municipal governments, including the City, and all applicable court orders, judgments and declarations of a court or tribunal of competent jurisdiction, including,
without limitation, those laws and regulations applying to building methods, health and safety (collectively referred to as “Laws”).

(e) Stormwater Management Report—On new projects with more than 500 square metres of roof area, an engineering report showing source controls (including runoff coefficients for green roofs) should be included as per the requirements of the stormwater management report for the development site.

Application Deadline and Review
6. The Program is undertaken annually and applications will be reviewed two (2) times per year: in the Spring and Fall. Notwithstanding such application deadline, upon commencement of the Program, if the City determines, at any time and in its sole discretion, that:

(a) it has received a sufficient number of acceptable applications to achieve its purposes and objectives of the Program, it may cease accepting any further applications; or

(b) it has received an insufficient number of acceptable applications to achieve its purposes and objectives of the Program, or an initial determination of sufficiency subsequently becomes insufficient for whatever reason it may suspend or further extend the deadline date of the program as it in its unfettered discretion deems appropriate.

Applicant's Responsibility with respect to Work
7. Each selected Applicant shall, and by signing this application agrees to, assume all financial and other responsibility for all work whatsoever in respect to and related to installation, performance, maintenance, repair and use of the Eco-Roof including, without limitation, the selection of the installers (where applicable) the proper installation of the Eco-Roof and any consequence arising from the installation of the Eco-Roof and the compliance with all Laws in respect to such work.

Waiver and Release
8. The City makes no representation or warranty, express or implied, relating to any Eco-Roof or the availability, competence, quality or financial status of any installer or their work, and by submitting an application, including acceptance of same by the City and any agreement arising thereunder or in consequence thereof, each Applicant fully and completely, without qualification, agrees hereby to waive and release and shall be deemed to have waived and released the City, its officials, officers, employees, agents and representatives from and against any claims or liabilities whatsoever including, without limitation, any damages, costs and liability for any and all loss, injury or damage to any property or person, whether direct, special, consequential, indirect or of any other nature, in connection with or related to the installation of a Eco-Roof or related to the participation in this Program.

Conditions of Payment
9. No payment of a grant or financial incentive under this Program shall be made unless and until the following conditions are met:

(a) a complete and compliant Program application has been approved and the installation is fully completed in accordance with all terms and conditions of this Program set out herein; and

(b) a permit has been obtained from the Chief Building Official in accordance with the requirements of the Green Roof By-law; and

(c) documentation provided by the manufacturer or materials supplier has been received by the City verifying the installed Eco-Roof has been completed in accordance with the terms and conditions of this Program, along with accompanying photographs of said Eco-Roof; or

(d) an inspection by the City or its agent verifying the installed Eco-Roof has been completed in accordance with the terms and conditions of this Program.

Terms of Payment
10. Upon successful completion of the installation of the Eco-Roof in accordance with the terms and conditions of this Program set out herein, those grant monies to which an approved applicant may be entitled under this Program will be awarded and paid over to such applicant.

Information and Access Rights of City
11. Each Applicant selected and approved by the City for this Program hereby consents to and shall provide and authorize the City and its personnel:

(a) access during installation period and/or after the installation for a period up to six (6) months from completion to verify compliance of the work with this Program and to photograph the installation;

(b) the right to use or take, including the right to make reproductions of, any information, photographs and digital images and other data concerning any building selected and approved under this Program in any report and/or promotional and educational materials produced by and/or for the City; and

(c) to have access to, and the right to make reproductions of, utility records of any building selected and approved under this Program, for the two (2) year period preceding and following the Eco-Roof installation (four years in total), for Program evaluation purposes.

Privacy Notification:
12. Personal information, on this form, and in relation to the Eco-Roof Incentive Program is collected under the authority of City of Toronto Act, 2006. The information will be collected and used for the proper administration of the Eco-Roof Incentive Program,
which will include, but is not limited to: processing of applications for the program; evaluation and verification of compliance with the Eco-Roof Incentive Program; evaluation of the Eco-Roof Incentive Program; use in governance, educational, promotional materials concerning the Eco-Roof Incentive Program; the issuing of payments in relation to the affected properties; updating the information concerning the affected properties, and collection of any unpaid amounts resulting under the Eco-Roof Incentive Program. Questions about this collection can be directed to the Eco-Roof Co-ordinator, Toronto Environment Office, 100 Queen Street West, 21st Floor, East Tower, Toronto ON M5H 2N2, Telephone (416) 397-0311.