



Green rooftop gardens can provide condos with many benefits including improved quality of life and building prestige.

Green Roofs — An Opportunity for Condominiums

By Tim Beattie, PEng

CONDOMINIUMS built in a conventional manner are becoming less attractive in this era of increasing green technology.



Modern cities are heating up, effectively stewing in their own haze, with smog associated comfort and health problems. Research has shown that traditional, stagnant building rooftops are seriously contributing to this “urban heat island” effect, which can effectively be countered by increasing green roof areas within cities. Rooftops are at present tremendously

underutilized components of our buildings and urban landscape.

Green rooftop gardens provide condominium with many benefits by improving quality of life and building prestige and, yes, reducing operating costs. Heating and cooling energy requirements, as well as greenhouse gas emissions, are reduced through shading and natural vegetation “breathing.” Benefits include longer lasting roofing systems, additional recreational green space, reduced storm water management problems, increasingly higher building appreciation, and lower building heating and cooling costs.

On May 26, 2009, Toronto City Council adopted a new Green Roof

Bylaw which will apply to all new building permit applications made after January 31, 2010. This Bylaw will apply to new residential, commercial and institutional buildings, and will be expanded to industrial buildings on January 31, 2011. The Bylaw requires that the roof of new buildings have a minimum amount of green roof space. (Additional information can be found at www.toronto.ca/greenroofs).

On September 2, 2009, the City of Toronto launched the Mayor’s Tower Renewal Program, which is aimed at improving the energy efficiency of the older residential buildings in Toronto. Green roofs will play a significant role in this program. Pilot

projects are currently underway that will provide the framework for going forward with this Program. (Additional information can be found at www.towerrenewal.ca).

Yet, green roofs are not consid-

ered 'mainstream' enough for existing condominium applications, in our view unjustly so, in relation to their perceived high costs and relative 'novelty.' In our experience, green roofing technology is both proven and afford-

able to the condominium industry.

Brown & Beattie recently provided engineering services related to a Community Green Roof Project in Toronto. This project formed the basis of a 2009 episode of Green Force on the Home and Garden Television Network. This technology is far too beneficial to be limited to TV specials!

Brown & Beattie was recently involved with the transformation of this barren roof of an abandoned distillery in downtown Waterloo. It is now a vibrant attraction as part of the Centre for International Governance and Innovation, demonstrating how simply effective Green Roofs can be.

Technical aspects of this green roofing system included a state of the art roofing membrane system with inverted insulation, root barrier and drainage board layers, with filter cloth with a special biomix soil. Native Ontario vegetation was planted, creating a new roof that has been remarkably low maintenance with no artificial needs. This technology is not new and has been proven for years in varying forms on most condominium underground parking garages.



An abandoned distillery in Waterloo, Ontario was transformed into the Centre for International Governance and Innovation complete with green roof.



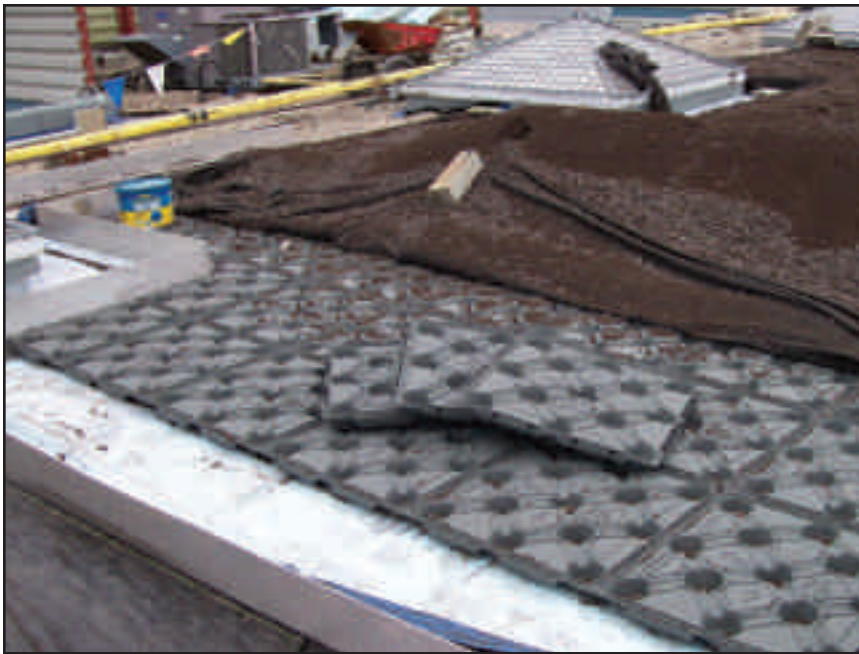
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Laying the foundation for the green roof plants.

Engineering calculations indicated the existing roof structure could handle the related increased loading, something that should be calculated when contemplating any green roof project.

A beautiful meadow-like envi-

ronment now hosts many species of birds, butterflies and bees that have attracted interest from occupants inside this building and the surroundings in this transformed oasis.

The building owner has confirmed a reduction in building heat-

ing and cooling costs.

These kinds of transformations need not be limited to 'specialty' applications. Truly visionary life cycle thinking in reserve fund planning should realize the benefits of green roofing to dispel current reluctance towards this innovation. Such innovative planning will lead to better utilization and enjoyment of our condominium rooftops in an ever-increasing push towards the benefits of a more sustainable future in which the condominium industry can start to play a leading role. ■

Tim Beattie is a professional engineer and principal of Brown & Beattie Ltd, a building science engineering firm dedicated to providing clear and sensible building improvement, maintenance and repair planning advice by listening to clients' objectives. Brown & Beattie Ltd. is a member of the Roof Consultants Institute, and provides innovative and practical Roof Assessments, Engineered Condition Surveys and Reserve Fund Studies to the condominium industry.



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