

Turn a Flat Roof into a Green Roof



Yes, your condo flat roof can be turned into a beautiful green roof with numerous economic and environmental benefits.

By Craig Bennett



HAVE YOU ever considered what would happen if your flat roof was turned into a green roof? It's a great way to convert empty space into valuable green space while also achieving several important environmental benefits, including reduced water run-off, reduced energy demand, creation of natural habitat, reduced air pollution, reduced heat island effect and improved air quality.

The economic benefits are equally numerous: reduced cooling and heating costs, increased living space, increased building value, extended roof life and reduced indoor noise.

Grant money is available from municipal governments (including Toronto), which should come as no

Laying the membrane, a 2-ply modified bitumen.

surprise because green roofing supports numerous top level objectives, including increased property values, creation of “green jobs” and a reduction of the carbon “footprint.”

In Toronto the green roofing revolution is being led by a handful of companies. Avenue Road Roofing (ARR) and its partner, Xero Flor, one of North America’s leading suppliers of green roofing design, installation and maintenance recently completed a joint effort, involving construction of a green roof for the Drum Artz Centre in downtown Toronto. This is a good case study for condo managers because it involved most of the same steps that would apply to a condominium building.

■ The Drum Artz Centre Case Study

Drum Artz Canada is a registered charity dedicated to educational programming through world music, percussion, dance, visual arts and theatre.

Step one was to complete engineering studies (work performed by Brown & Beattie Building Science Engineering) on the existing roofing and the new roofing required for the Xero Flor 301 System, selected because of its light weight.

Installation of the green roofing involved:

- removal of the existing tar and gravel roof
- installation of a:
 - a) new SBS 2-ply modified bitumen membrane roof, supplied by IKO industries
 - b) polyethylene barrier
 - c) water-retention fleece layer
 - d) vegetative cover with 13 different plants

The new green roof provides a safe, green recreational space for program participants. In addition, it gives the centre increased capacity to run activities and workshops throughout the year.

Drum Artz executive director Gili Gurvitz says he is happy with the results. “We’re in an urban area with very little access to gardens and parks,” notes Mr. Gurvitz. “With a green roof we can grow what we eat and nurture plants and watch them grow. Our green roof is also a great educational tool because it allows

our participants to learn what you need to take care of the environment.

To learn more about green roofing, including the availability of government grants, visit the web page set up by the city of Toronto to promote green roofing (<http://www.toronto.ca/greenroofs/index.htm>)

■ Key Environmental Benefits of Green Roofing

- Retains 60–100% of incoming rainfall. The resulting decrease in

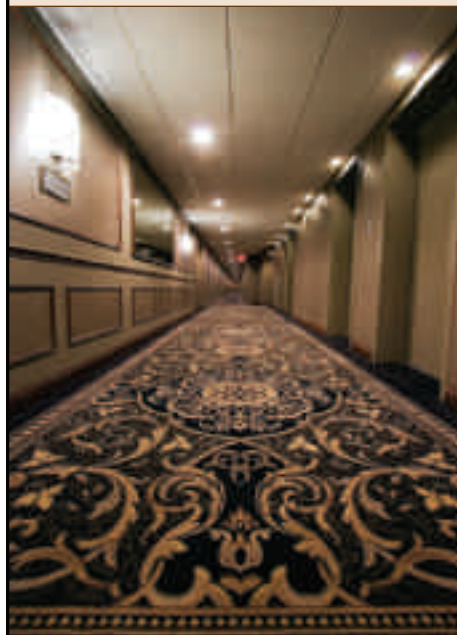
run-off helps reduce sewer system overflow and runoff of airborne contaminants.

- Energy savings. Cooling is achieved naturally because green roofing acts like rooftop insulation.
- Creation of a new habitat. A green roof is alive with microorganisms, butterflies, and birds.
- Reduced urban heat island effect. Green roofing reduces the increase in regional temperatures caused by thermally loaded cityscapes.

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The finished green roof on the Drum Artz Centre.

- Improved air quality. The plants that make up a green roof absorb carbon monoxide and release oxygen, processes that lead to improved air quality and reduced air pollution.

- Less noise pollution. Green roofs naturally absorb sound, leading to a 10–30 decibel reduction in outdoor noise and a 40–50 decibel reduction in indoor noise.

■ Green Roofing Tips for Condo Managers

- The first step is to consult with an engineer who can confirm structural details of the building and determine the load capability of the roof structure, taking into account the weight of the roof assembly, snow load capacity, wind uplift, etc. This information is needed to determine what type of green roof system

that can be specified.

- If you are re-roofing a building, a permit is required from the city. You can save time and money by supplying the original structural drawings of the building.

- Give special attention to access and how it will impact irrigation and maintenance. A ten-storey building will have different issues than a two or three-storey building.

- Membrane testing, performed prior to installation of the green roof assembly, should be part of the construction process to ensure there are no leaks.

- Prior to installing the green roofing, install a leak detection system. Essentially, this involves putting in place an electronic grid system that can be monitored from a computer, an approach that makes leak identification and repair less costly.

- Give thought to the intended use of the roof space when the green roofing is complete:

- a) will there be walkways and sitting areas?

- b) how much weight will need to be supported?

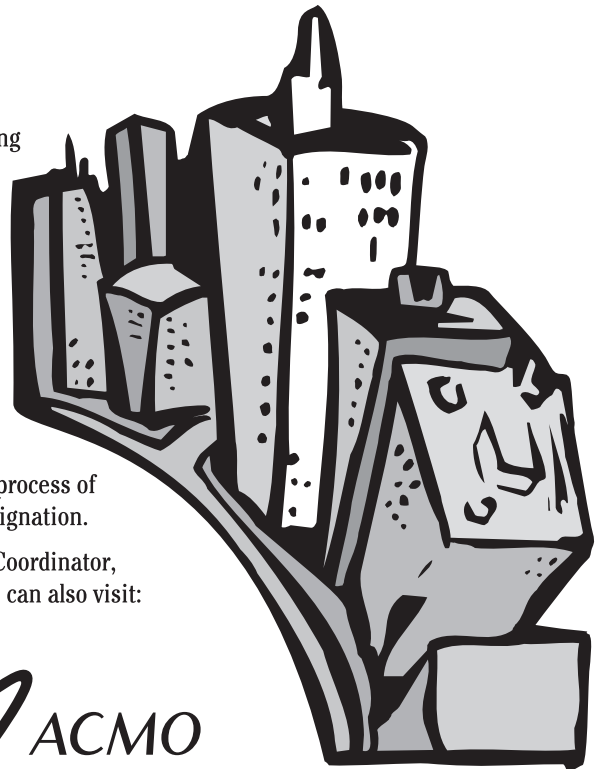
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c) is there proper access to HVAC systems?

- Choose varied sedums (plants), an approach that will help create year-round interest in the garden and make the garden more disease resistant.
- Develop a maintenance strategy that takes into account access issues and the availability of water.
- Don't take chances on an un-

proven green roofer. Green Roofs for Healthy Cities is an excellent referral source. ■

Craig Bennett, is deputy executive director, Avenue Road Roofing. He can be reached at 416-785-5129 or visit the company's website, www.avenueroadroofing.com. ARR is a member of Green Roofs for Healthy Cities!



A polyethylene barrier is laid and a fleece layer for water retention.



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Top Ten

Roofing Tips for Condo Managers

1. Get expert advice. It pays to have a qualified roofing expert survey all roof areas and drainage systems annually. Make sure you also ask for photos and documentation of any problem areas. These steps are

important because they allow you to prioritize spending. In addition, you get valuable information you can provide to your insurer to demonstrate due diligence, a necessary step to maintain insurance coverage.

2. Implement a snow removal and ice dam remediation plan before the winter season begins. Did you know that southern Ontario experiences an average of seventy freeze-thaw cycles. That means there are about 70 times when accumulated snow in vulnerable areas, such as slopes, dormers, valleys, eaves and gutters, can melt, leading to leaks and possibly significant interior damage. Don't wait until the first thaw hits and it is tough to get an appointment because all roofing companies are swamped with emergency inquiries. Make the smart move. Schedule snow removal in advance.

3. Inspect interior units. Make an annual inspection, taking special care to look for problems, such as water stains or flaking paint, im-



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mediately below the roof grade. Remember, if small problems are not addressed, they will eventually grow into big problems.

4. Inspect and test connections of roof ducting that adjoins HVAC units. These problem areas are often missed, leading to unsuccessful repairs and wasted money.

5. Have all masonry exterior surfaces or exterior finished (stucco, precast panels, siding) inspected annually. Tuck pointing degraded mortar joints can help prevent water filtration and bigger problems such as mass shaling of brick areas. Also, look for loose pieces of soffit or cladding. If they fall off and become airborne, pedestrians could be at risk.

6. Check insulation and ventilation. This is a timely step because both are eligible for generous government retrofit grants. You also benefit because upgrading insulation results in reduced heating and cooling costs, improved comfort levels and less risk of ice damming. It's critical that there is a proper bal-

ance of intake and exhaust ventilation, particularly after insulation upgrades are completed. This will help ensure that the roof assembly lasts longer and manufacturer warranties are not undermined. Here are two other steps that are often forgotten:

- add higher grades of roof insulation during flat roof replacement
- add blown or batt insulation to attics and wall cavities
- add insulation under new siding

7. Ensure there are no blockages in your eavestrough system and keep the drains on flat roofs clear. Make sure your building superintendent is making regular inspections. Problems often develop when inspections are not done because access is difficult for a building superintendent. Solve that problem by hiring a roofing professional who not only has the training and equipment to overcome access challenges, and also has the expert eye required to spot problems that might not be noticed by a building superintendent.

8. Take advantage of available

financing options and terms. Some roofers offer attractive financing options that can help you overcome budget limitations.

9. Shop the market. There is no need to take chances with an unknown roofing company making too-good-to-be-true offers from discount roofers. Pick a company with a proven track record and get the job done right the first time.

10. Invite the contract bidders to a board meeting. Everyone benefits when board members have a chance to meet a bidder, discuss options and ask questions. Most important, the board members can make a sound business decision, based on fact, not marketing hype, and the winning bidder develops an understanding of the condominium's "personality", which varies from building to building. ■

Supplied courtesy of Avenue Road Roofing. For more information, call Avenue Road Roofing at 416-785-5129 or visit the company's website, www.avenueroadroofing.com

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