

The “greening” of the roofing industry

Yes, yet another article on green roofing. Actually, the roofing industry prefers to call them “roof top gardens”. Why?

The reference to green has many meanings and generally refers to the overall environmental characteristics of a roofing system. Whatever you call them, it has been a long time since we have seen such a technological movement grip the roofing industry.

The hype surrounding this green roofing, sorry, roof top garden phenomenon is unprecedented. Even the federal Minister of the Environment proclaimed he would like to see a garden roof on every federal building across Canada.

Have you ever been to Ottawa? That city has perhaps more parkland and green space than any city in the country. Does the federal government really believe that there will be an environmental benefit to that city or any others, save Toronto, in this dominion?

Speaking of the City of Toronto, they recently hosted a Green Roof Technology Workshop. The workshop was designed to present the benefits of green roofing to the City and encourage green roof development across the GTA.

What are the perceived benefits? Environmental and social benefits top a list which includes stormwater management, energy savings, improvement in air quality and emissions and the reduction of the “urban heat island effect” to name a few. Other advantages cited include extended roof life, beautification, and the potential

for local food production.

While there seems to be a tremendous amount of discussion and written word on the subject of roof top gardens, very little practical and technical information, with a Canadian slant, is available. In fact, issues that relate to the construction, selection of materials and maintenance of these systems are rarely talked about.

This presents a predicament for not only the designers of roof top gardens but also the roofing contractor who inevitably must install them.

For example, garden roof material standards are practically non-existent in North America. Also, how about ULC, FM and building code standards, which may impact fire resistance, wind uplift and membrane performance?

Roof membrane selection is an aspect of roof top gardens that seems to be taking second place to the overburden and what potentially may be grown on top of these systems. The City of Toronto talks about the potential for local food production!

Perhaps advocates of garden roofs are losing sight of the fact that these are roofs and we will be depending upon them to separate building interiors from the elements.

Also, let's not forget that if these membrane systems are not installed perfectly the first time, the cost to repair them will be exorbitant.

Roof top gardens are complex systems that incorporate multiple components including vegetation, growing medium, a

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filter layer, a drainage layer, insulation, root penetration protection and most important of all, the waterproofing membrane.

Proponents of roof top gardens like to remind us that these systems have been performing successfully for many years in Europe. Great, but North America and Canada specifically have much different climates.

What impact does our winter have on the roof top plantings? Many of the roof top gardens constructed to date have experienced growth problems.

In Dearborn, Michigan, the Ford Motor Company built a 4.5-million-square-foot garden roof over one of their truck manufacturing plants. They experienced extensive problems relating to the specified vegetation cover.

In most cases, the upkeep of the growing medium and vegetation has proved challenging. Nutrition, irrigation, drainage and cultivation are aspects of roof top garden maintenance that building owners must be prepared to address.

Roof top gardens are very expensive to design, construct, maintain and repair. It is therefore not surprising that with few exceptions it is the government pushing for their acceptance.

While the benefits may seem attractive to high population areas in Asia, Europe and the United States, one has to wonder if they are necessary in a country like Canada.

Building successful, conventional, low-sloped roofs in this country has always proved demanding. The addition of roof top garden components may generate unwanted roof system performance problems down the road.

Governments, cities, building owners and their designers should consider waiting for Canadian (or at least North American) industry standards to be developed before moving ahead full steam.

The establishment of legislation to foster roof garden development in places like Toronto is premature at this time. Research on North American roof garden technology is in its infancy.

It is important that all sectors of the construction industry come together to better understand the implications of building roof top gardens.

While the anticipated benefits may seem desirable, their existence has yet to be proven.

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