Roofing industry key to meeting green targets, says NRC expert

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Ralph Paroli

Roofing designers, consultants, contractors and other industry members have a pivotal role to play in the movement towards green construction, says a leading building envelope specialist.

Approximately 25 per cent of the waste generated at construction sites is roofing waste, says Ralph Paroli, director of the building envelope and structure program of the National Research Council's Institute for Research in Construction.

"The roofing industry can make a significant contribution to sustainable development," he said in urging an industry audience recently to adopt work practices to reduce that waste volume.

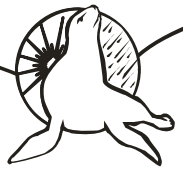
A roof is a key component of a building and if it fails there can be business losses for the owner, he said. "Accordingly, roofing can be viewed as a very significant part of the process of striving to achieve sustainable construction."

He points to a recently published NRC research study on sustainable roofing and stressed the significant strides made in the design, construction and use of green, reflective, and high-performance roofs.

There is a belief these types of roofs are new, when in fact, they've been around for more than 30 years, he said.

"What has changed over the years is interest in them has increased significantly. More research is being conducted to shed light on their design and performance and as the results became available, the industry and building owners have had the confidence to try these technologies."

Often called a rooftop garden, a green roof falls in two categories. Intensive roofs are traditional style roof gardens with large tree and shrubs, while extensive green roofs are garden systems designed to be virtually self-sustaining with minimal maintenance.



Not only do they reduce the urban heat effect which can raise temperatures by as much as five per cent compared to rural areas, green roofs promote a feeling of well being.

Research has shown residents of hospitals and other institutions benefit from them.

“They do feel better seeing a rooftop garden,” he said.

Designing and constructing green roofs, however, requires co-ordination with trades and additional longtime responsibilities for the owner or building manager.

“Now you have both a roof and a garden that has to be maintained,” he said.

White or reflective roofs have both a high reflectivity — reflecting solar radiation away from the surface. Similar to garden roofs, they reduce building energy demand in the summer and mitigate the urban island effect.

Although the membrane will get dirty as it ages, cleaning may not be necessary as the reflectivity will still be very high, said Paroli, who warned of the pitfalls of cleaning, especially pressure washing.

“You may remove part of the coating so what will you gain from cleaning?” he said.

Potential glare and visual concerns, especially the impact of white roofs on residents and employees in nearby buildings have to be taken into account by designers and installers will need additional ultra-violet protection.

A potential drawback of white roofs is that they are climate dependent. There is very little reflectivity during the harsh Canadian winters when days are short and the membrane is covered with snow, he said.

High-performance roofs are durable, economic, energy efficient, and environmentally friendly, said Paroli, noting there is also a trend towards incorporating photo-voltaic solar panels into the building structure.

“Solar and roofing are becoming integrated,” he said.