



First Ecoroof installed in Edmonton

PROJECT:	10160 Ecoroof
LOCATION:	10160 - 112 Street N.W.
BUILDING TYPE:	Business/Office building
TOTAL ROOF AREA:	3,968 m²

Ecoroof details

ECOROOF AREA: 825 m²

DIRECTION: North facing

STOREY: Top storey (3rd storey)

YEAR INSTALLED: 2004

NEW BUILD OR RETROFIT: Retrofit

TYPE OF ECOROOF: Extensive ecoroof

ECOROOF SYSTEM: Loose laid system (built-up layers) provided by Hydrotech Membrane Corporation. This system also introduced a new technology called the HydroMat, which now is a part the Soprema ecoroof system. The HydroMat was a unique system at the time which incorporated a root repellent layer, capillary mat, flexible irrigation and a landscape fabric separation layer – all in one system.

SUBSTRATE DEPTH: 10 cm

PLANTS: A variety of native species, wildflowers and grasses from Alberta's mountain, prairie and parkland ecoregions. As well as traditional ecoroof species sedums and chives.

ACCESS: Due to weight restrictions this roof is an extensive ecoroof with limited access to the public. Access is through the top mechanical room, it has a steep stair case access to a roof hatch.

Description

Installed in 2004, the 10160 ecoroof was the first ecoroof to be installed in Edmonton, Alberta. At the time of installation, the building was owned and occupied by Stantec and is still referred to as the 'Stantec ecoroof.'

The structure the ecoroof was built on was a new addition to an existing office complex, but during the design phase of the project, the ecoroof was removed from the building plan due to budgetary reasons. The ecoroof was later added after the building construction was complete, thus why this ecoroof is considered a retrofit.

The owners of the roof periodically removed weeds from the roof and after a few years they hosted a 'planting party' to fill in sections of the wildflower areas of the ecoroof.

Challenges

The 10160 ecoroof faced several challenges during design and construction. Sourcing materials was a challenge at the time because there were limited native plant growers in the area, and the substrate/soil required was not available nearby so had to be shipped from Quebec. In order to ship the substrate/soil, it came in small bags, which the contractor had to individually open and pour into the 'blower truck' to be blown onto the ecoroof; this process was very time consuming.

Since the ecoroof was removed from the building plans and then later re-added, the design of the ecoroof had to be modified, and would be considered a retrofit, to ensure it met the structural capacity of the roof. Although the roof was originally designed to hold an ecoroof, the evolution of the building's design relocated mechanical units to the roof top, reducing the originally planned structural capacity for installation of an ecoroof. The structural capacity was reduced, but not eliminated. Designers developed a light weight ecoroof that would adhere to the structural capacity to hold an ecoroof.

It was a challenge to find knowledgeable, qualified people to perform ecoroof maintenance.

Over the years, the plant community has evolved. Even though there were separate planting areas with different species, over time the wildflower areas were outcompeted by the grasses and sedums.

Benefits

The benefits that this ecoroof provides are linked closely to the motivations for the installation. The installation was driven by the desire to build a LEED compliant building, however, it was also driven by many of the designers at Stantec who saw it as an opportunity for Stantec to implement sustainable principles in their own design and operation of the new addition.

From 2005-2007 an insect biodiversity study was conducted by Stantec and a Bio-Science Master's student from the University of Alberta to determine the type of insects that inhabited the ecoroof. They found that the ecoroof supported several functional groups of insects and that higher biodiversity occurred in the areas of the ecoroof that were planted with more diverse species of plants and where plants were greater in height.

Unfortunately, the building benefits were not quantified. Of interest is that this roof was one of the first loose laid ecoroofs in Edmonton and was an excellent test site for this emerging technology.

Lessons Learned

Thoughtful planning is the most important. Edmonton has a harsh winter environment and most plant failures are due to winter wind desiccation, therefore a thin layer of growth medium is not recommended; extensive ecoroofs should not be less than 6" deep. A preferable depth would be 8". For the plant material it would be best to use plugs or pre-planted trays for quicker vegetation coverage. If budget is tight and seeding is the only option, only seed with grass species. It is extremely difficult to get wildflowers to grow from broadcast seed.

When designing an ecoroof, ensure you consider potential design changes such as the decision to move mechanical units to the rooftop, as this will change the structural load capacity of the roof, and thus change the weight allowed for the ecoroof.



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