FACTSHEET

GREEN ROOFS

DESCRIPTION

Green roofs have vegetation growing on top of buildings to detain and retain rainwater. They also offer shade and insulation benefits that result in reduced energy usage. A typical green roof consists of several layers, including vegetation, growing medium, drainage filter, drainage layer, root barrier, waterproof and roofing membrane, cover board, thermal insulation, vapour barrier and building support structure.

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APPLICATION

Green roofs are suitable for installation on a variety of buildings, including industrial, educational and government facilities, offices, commercial properties, and residences. Generally, buildings with large roof areas are ideal for green roofs.

CONSIDERATIONS

- **Types:** There are two types of green roofs: extensive and intensive. An extensive green roof consists of a thin layer of growing medium (50–150mm), which is lighter in weight and consists of ground cover type of plants such as grass and sedum. An intensive green roof consists of a relatively thicker growing medium (300 to 600mm), which is heavier and may consist of woody plants such as shrubs and trees.
- **Slopes:** Protection against slipping and slumping of plant layer should be provided if installed on sloped roof.
- **Structural:** Green roof builders must ensure structural stability of the roof to support the weight of both the green roof and snow loads and comply with the Alberta Building Code. An electronic leak detection system may be considered to help protect the roof from moisture damage.
- **Overflows:** Managing overflows from green roofs involves incorporating drainage systems into the design.
- **Access:** Maintenance access must be considered during roof design to ensure workers are protected from hazards such as falling from heights.

BENEFITS

- Retain 70 to 90 per cent of annual rainfall that lands on the roof (depending on the depth of growing medium and roof slope)
- Provide shade to underlying surfaces and reduce cooling costs
- Potentially reduce winter heating costs
- Reduce urban heat island effect (as the process of evapo-transpiration by vegetation lowers the temperature of surrounding air)
- Provide urban green space and habitat for birds and insects

MAINTENANCE

Facility inspections should be conducted monthly from April to September. A clear path should be maintained through the roof drain outlet. Irrigating, fertilizing, and weeding are needed during the first two years of installation until plantings are established. After establishment, inspection and maintenance can be limited to two visits per year in the snow-free season, including:

- Inspection for plant health, soil erosion, and layer deterioration
- Leak testing and safety inspection
- Removal and replacement of unhealthy / dead vegetation
- Replacement of eroded soil
- Debris removal and weeding

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