

## Green Roof Benefits

### Adding Financial Value

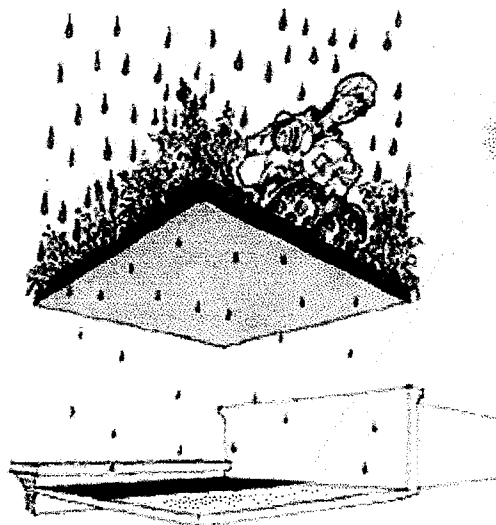
Vegetated roof covers add financial value to a residential, commercial, governmental, or industrial building by:

- Extending the **service life** of the roof,
- Reducing **energy costs**,
- **Conserving valuable commercial space** that would otherwise be required to provide stormwater runoff controls, and
- Increasing the **property value**.

The service life of the underlying waterproofing is doubled — or even tripled — because the vegetative cover:

- Protects from **mechanical damage** (mostly from humans, but also from wind blown dust and debris, and animals),
- Shields from **ultraviolet radiation**, and
- Buffers **temperature extremes**, minimizing damage from the daily expansion & contraction of the roof materials.

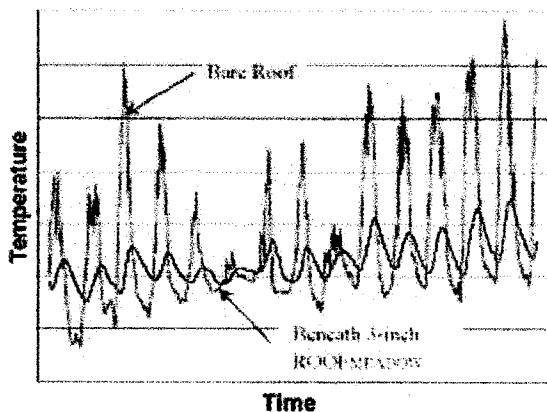
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Extending the service life of the waterproofing not only returns the owner's investment in the green roof over time, but reduces landfill waste.



Mature growth at the Fencing Academy of Philadelphia.  
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Temperature data from the Roofmeadow® installed at the Fencing Academy of Philadelphia.

## Stormwater Management

**Control of stormwater runoff** is achieved by mimicking the processes that occur in nature, intercepting and **delaying** rainfall runoff by:

- **Capturing and holding precipitation in the plant foliage,**
- **Absorbing water in the root zone,**
- **Slowing the velocity of direct runoff** as it infiltrates through the layers of vegetated cover.

For small rainfall events, little runoff will occur and most of the precipitation will eventually return to the atmosphere by evaporation and transpiration. For larger storms, vegetated roof covers can significantly delay and attenuate the discharge of runoff from roofs.

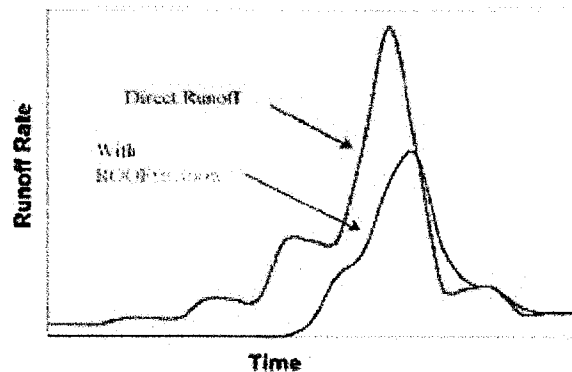
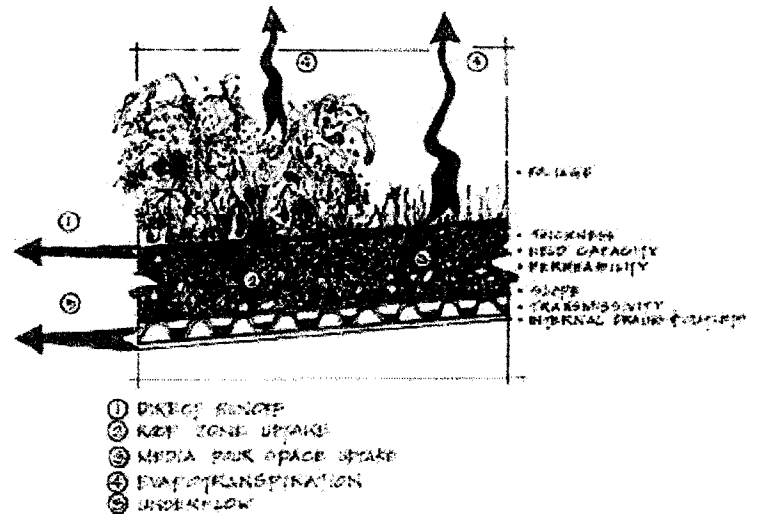
**Compared to many other stormwater management practices, vegetated roof covers are unobtrusive, low maintenance, and reliable management systems.**

Vegetated roof covers are particularly effective when applied to extensive roofs, such as those that typify commercial and institutional buildings. They can be designed to achieve specified levels of stormwater runoff control, including reductions in:

- **Total annual runoff volume** (reductions of 50 to 60 percent are common place for vegetated roof covers), and
- **Peak runoff rates** for selected design storm events

**Vegetated roof covers may offer the only practical "at-source" technique for controlling runoff in areas that already are highly urbanized.** Due to their potential for addressing flooding impacts in our cities, vegetated roof covers have been featured in many recent stormwater management handbooks.

For German case studies in which green roofs are an integral part of urban stormwater control, see *Study of Extensive "Green Roofs" in Berlin*, by Manfred Köhler and Marco Schmidt and *Production and Transportation Center Bondorf, Germany*.



Stormwater runoff for a 3.35-inch, 24-hour rainfall event. This Roofmeadow incorporated a 3-inch deep layer of growth media.

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