

Green Roofs



Effects of storm water and flooding in Howard County

Storm water runoffs enter storm drains where they are usually left untreated

Storm water runoff is damaging to the land around it, including waterways they enter:

High velocity runoff will erode streams and rivers

Runoff carries nutrients from pet waste, herbicides, road pollutants, pesticides, and fertilizers – these create algae booms and dead zones, which result in increased fish fatality

Excess sediments collected in the storm water create a barrier that blocks sunlight. In streams, this saturates the aquatic habitat and alters the landscapes

Storm water runoff can cause notable flooding

What is a Green Roof?

A green roof is a vegetative layer over a rooftop that provides aesthetic and environmental benefits. Green roofs are generally constructed with multiple layers, including a waterproof membrane, root barrier, drainage portal, growing medium, and of course vegetation. Green roofs are versatile and can be installed on both flat roofs and slightly sloped roofs. Green roofs typically weigh in at about 15-50 pounds per square roof, depending on the type of vegetation you are installing. As a result, is strongly advised to consult a structural engineer before starting construction.

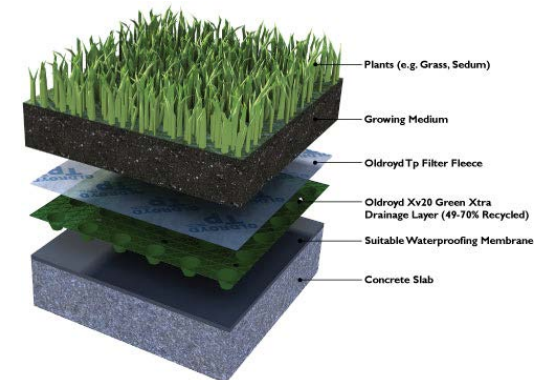
WHY GREEN IS BETTER

Energy Saving: Green roofs reduce the cost of energy, such as heating and cooling

Air Quality: Green roofs help filter out pollutants and reduce emissions in our air

Storm Water Management: Green roofs filter and reduce speed of storm water runoff, which reduces the amount of pollutants entering streams and rivers .

Ecological Benefits: Green roofs help create wildlife habitats & reduce urban heat.



Still Not Convinced?

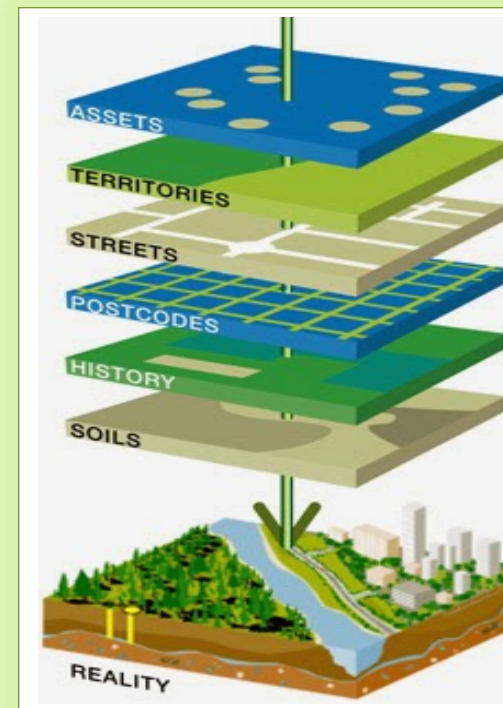
ADVANTAGES

- Extends waterproofing membrane lifespans by a factor of 2 to 3
- Provides stormwater volume, rate, and quality benefits.
- Cools any rain that runs off the roof.



- Lowers energy costs for heating and cooling the building
- Improves urban air quality & reduces dust and smog levels
- Lessens the urban heat island effect
- Provides sound insulation
- Improves aesthetics, which has been linked to psychological and economic benefits

- Potential for urban agriculture/local food production through public open space, where at grade space is not available
- Creates wildlife habitats in an urban environment, with potential for the growth of ecosystems



Costs

- Extensive systems can range from \$8-\$15 per square foot, a rather affordable price for the average income of Howard County.
- Semi-intensive systems can range from \$15-\$25 per square foot
- Intensive systems can cost \$25+ depending on the ultimate depth of the installation, plant varieties, aesthetic goals, etc.

Sources

<http://www.cityofukiah.com/automobiles-and-stormwater-runoff/>

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