

Group Project Proposal: Greener Heights

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Abstract

For our group project we will be studying the technology of green roofs, roofs in urban spaces that have been transformed in living green spaces through the addition of insulation, soil, and plants. Green roofs can be anything from functional garden spaces on roofs and parks such as New York City's "The Highline" to roofs that only consist of soil and plants. We will be examining the benefits of green roofs, such as reduced storm water runoff, pollution reduction, and lower energy costs to buildings, as well as the political aspects surrounding green roofs and incentives for wider implementation.

Background

"Green roofs" are rooftops, usually in urban areas, which have been turned "green" by adding layers of insulation and vegetation on top of flat roofs in order to decrease rainwater runoff, pollution, and save energy. Green roofs have been utilized in cities in Europe since the 1960s, but have only begun to emerge in the United States in the past few years. Although some green roofs may be made aesthetically pleasing in order to turn rooftops into gardens or recreational spaces, the most basic type of green roof only consists of a waterproof membrane below the soil and plants, and requires very little maintenance.

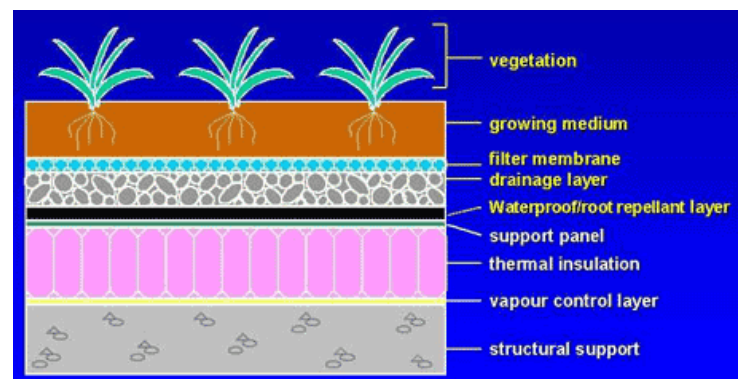


for up to twice the length of a regular roof.

Green roofs thrive on flat roof spaces which are exposed to sunlight, and provide multiple benefits to buildings and to cities in general. Green roofs decrease storm water runoff, as the plants and the growing medium plants are supported by can retain 70-90% of the water that falls on them. If used widely, this would prevent water runoff in cities which can then overwhelm sewage systems or cause flooding at ground level. The layers of plant life can also make the roof itself last

In addition, green roofs can help control the urban heating effect in hot months, as the leaves of plants absorb heat and light that would be converted into heat energy. The plants also filter carbon dioxide and other pollutants out of city air, and can reduce dust particles found in the air. Although green roofs are quite expensive to initially install, they can save buildings cost as they provide more insulation than typical roofs, reducing heating costs in the winter, and also cool down buildings in the summer by absorbing sunlight. One research study found that an extensive green roof could reduce air conditioning demand in the summer by up to 75%.

A typical green roof consists of a vapour control layer on top of the roof, topped by an insulation layer, a waterproof membrane, a drainage layer which allows pools of water to collect and feed plants, a growing medium such as soil, and the plants itself. Absorbent plants such as sedum, most usually found in deserts, provide the most benefits for cities. Some downsides of green roofs are their high starting costs, and as they are most beneficial when grouped together individuals sometimes do not see as many benefits as a city in general. However, because of this some cities have started offering subsidies to buildings who install green roofs, and in 2008 New York City governor David Paterson approved tax benefits to developers and building owners installing green roofs. Real estate value of buildings may also go up with the addition of green roofs, and they save energy costs due to the added insulation and cooling effects. In the future, it is hoped that both corporations and individual building owners will install green roofs, and that research will inform us of the best plants and soil mediums to optimize the roofs.



Potential sources and interviewees

We plan to contact a wide variety of sources while conducting our research on green roofs. These will include companies helping buildings construct green roofs, organizations who support the movement, environmental experts, and government organizations. We will speak to both the benefits and potential downfalls of green roofs, and explore what is being done by advocates to increase the awareness and implementation of green roofs. Our interviewees will inform our paper and research in general, and one or more of them will appear in our video. We also hope to take a trip to visit at least one green roof in the DC/Virginia area to see what they look like “in action” and talk to building owners which have taken advantage of this simple but effective technology.

References

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