GREENROOF DEMONSTRATION GARDEN/INTERPRETIVE CENTER

Capitol Greenroofs

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What are the Benefits?

Greenroofs provide a number of direct and indirect public and private benefits to a community and the buildings' residents and are becoming extremely popular in urban settings for a variety of reasons. These roofing systems provide an extra layer of insulation to the buildings roof and helps to reduce the amount of energy loss. Vegetated roofs help to reduce the "urban heat island effect" and help to protect the waterproofing membrane from excessive thermal cycles and damaging UV rays. The greenroof plants will filter out harmful pollutants, ozone, and other airborne particulates such as dust and heavy metals.

Greenroofs can also be used to manage stormwater and can significantly reduce the amount of site development infrastructure.

ENVIRONMENTAL BENEFITS

SECTION/ILLUSTRATIVE PHOTOS

Airborne & Storm Water Pollution Filtration

Extensive Greenroofs can typically remove about 50-60% phosphorous and 60-70% nitrogen from rainfall. Intensive greenroofs remove more pollutants and can uptake as much as 70% phosphorous and 80% nitrogen. The amount of pollution reduction is based on the depth of the soil, the time of year, and the type and number of plants installed. Extensive greenroofs do an excellent job of absorbing ground level ozone and CO2 and other airborne particulates.

AIRBORNE AND STORMWATER POLLUTION FILTRATION

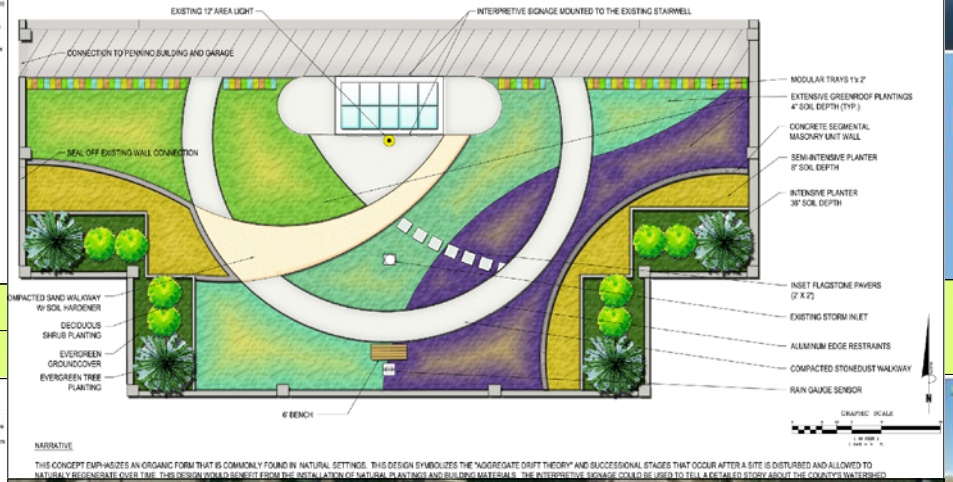
SECTION/ILLUSTRATIVE PHOTOS

Energy Consumption and Operational Savings

Heating and air conditioning consumption and energy loss through the roof's structural slab can be greatly reduced by installing greenroofs. The amount of energy savings depends on the depth of the soil, the insulating properties of the growing media itself, and the roof surface area that is vegetated. But in general, most residential structures could expect to save around 8-10% off of their energy bills and commercial buildings typically would save between 4-6% off of their energy bills.

ENERGY CONSUMPTION & OPERATIONAL SAVINGS

SECTION/ILLUSTRATIVE PHOTOS



Noise and Heat Island Mitigation

Vegetated roofs can have an enormous impact on the reduction of the "heat island effect". Studies have shown that if 20% of current buildings were retrofitted with extensive greenroofs the cities overall mean temperature could be lowered by 1-2 degrees if 50% of the buildings were "greened" the ambient temperatures may decrease by 6%. Vegetated roofs also provide a high level of noise mitigation and are a popular alternative for buildings located near airports. Extensive systems can provide a 35 decibel reduction.

NOISE AND HEAT ISLAND MITIGATION

SECTION/ILLUSTRATIVE PHOTOS

Reduced Stormwater Management Infrastructure Costs & Maintenance

Perhaps, the single largest benefit that greenroofs can provide is a reduction in the amount of stormwater runoff. On most structures in the D.C. metropolitan area 70% of the rain that falls on the greenroof will stay there and if used in conjunction with water retention systems it is possible to hold even more. Plus, greenroofs can easily meet both water quality and quantity credits in the District and if a roof is at least 50% vegetated can be used as a BMP device.

REDUCED STORMWATER MANAGMENT INFRASTRUCTURE COSTS AND RUNOFF

SECTION/ILLUSTRATIVE PHOTOS

MONITORING AND RESEARCH

SECTION/ILLUSTRATIVE PHOTOS