Environmentally Responsible Design

The Fencing Academy of Philadelphia Green Roof

Kelly C. Doyle 1.964 10/25/2006

The Project

The Fencing Academy of Philadelphia
Demonstration project by EPA

Roofscapes Inc.

- ***Area covered = 3,000 sq. ft.***
- ***Total thickness = 2.74 inches***
- ***Wet weight = 17 lb/sq. ft.***
- ***Predicted 54% reduction in annual runoff***

Green Roof 101

From the Bottom Up

- ***Waterproofing Layer***
- ***Drainage Layer***
  - ***Geotextile grid***
- ***Soil Layer***
  - ***Organic humus material***
  - ***Shale/porous media***
- ***Plant Layer***
  - ***Sedum***

The Benefits

- ***Runoff Reduction***
- ***Air & Water Quality Improvements***
- ***Aesthetic Improvements***
- ***Reduced Urban Heat Island***

More Benefits

- Temperature Mitigation
- Extended roof life
  - Wear and tear
  - Thermal expansion and contraction
  - UV exposure
- Energy efficiency for building

Design

- ***Extensive ($8-20/sf) vs. Intensive ($15-25/sf)*** (Commons) ***(GLWI)***
- ***Structural Integrity of the building***
  - ***Increased dead load ~15 psf wet***
- ***Average rainfall***
- ***Soil medium/ Plant species***
- ***Geotextile Design***
- ***Cost***

Sources

–*http://www.atmosphere.mpg.de/enid/Climate_in_brief/-_Climate_in_Cities_2t9.html*

–*http://roofmeadow.com/projects/project2.shtml*

–*http://www.glwi.uwm.edu/research/genomics/ecoli/greenroof/roofinstall.php#costs*

–*http://commons.bcit.ca/greenroof/infrastructure.html*