

BACCALURÉATS GÉNÉRAL ET TECHNOLOGIQUE

SESSION 2014

ÉPREUVE SPÉCIFIQUE MENTION « SECTION EUROPÉENNE OU DE LANGUE ORIENTALE »

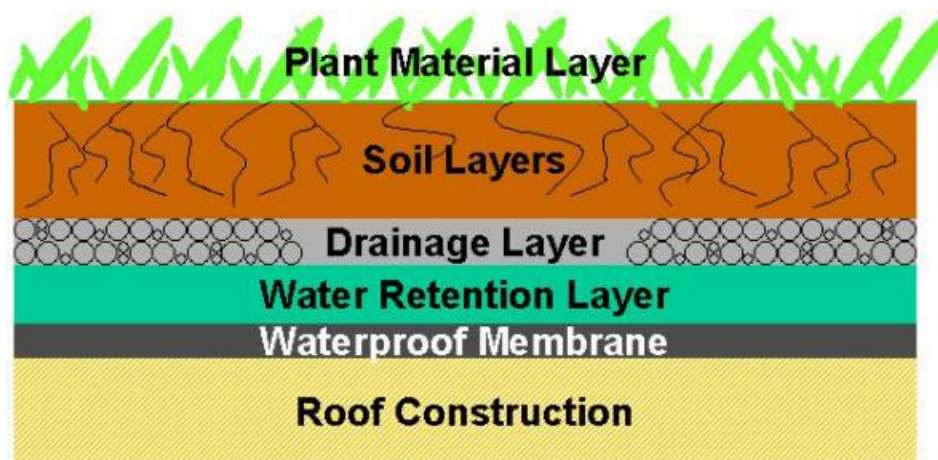
Académies de Paris – Créteil – Versailles

Anglais / STI2D enseignement transversal

Sujet n°3

Thème: Développement durable et environnement

Benefits of green roof



Document 1:

Planting the rooftops of urbanized areas brings many benefits to public, private, economic and social sectors, as well as to the local and global environments. While all green roofs have similar functions, each installation is unique, so technical performance will vary by region, climate, building and green roof type and design. The benefits described below can be achieved by virtually all green roof systems and designs.

Green roofs reduce stormwater runoff¹ (document 2)

During heavy or continuous rain, runoff can overwhelm² stormwater infrastructure and potentially damage waterways and fish habitat.

- Green roof growing media retain rainwater and, together with plants, return a portion of this water to the atmosphere through evaporation and transpiration (evapotranspiration).
- Stormwater that does leave the roof is delayed and reduced in volume.

Green roofs are energy efficient

Green roofs reduce the heat flux through the roof, and less energy for cooling or heating can lead to significant cost savings. Shading the outer surface of the building envelope has been shown to be more effective than internal insulation.

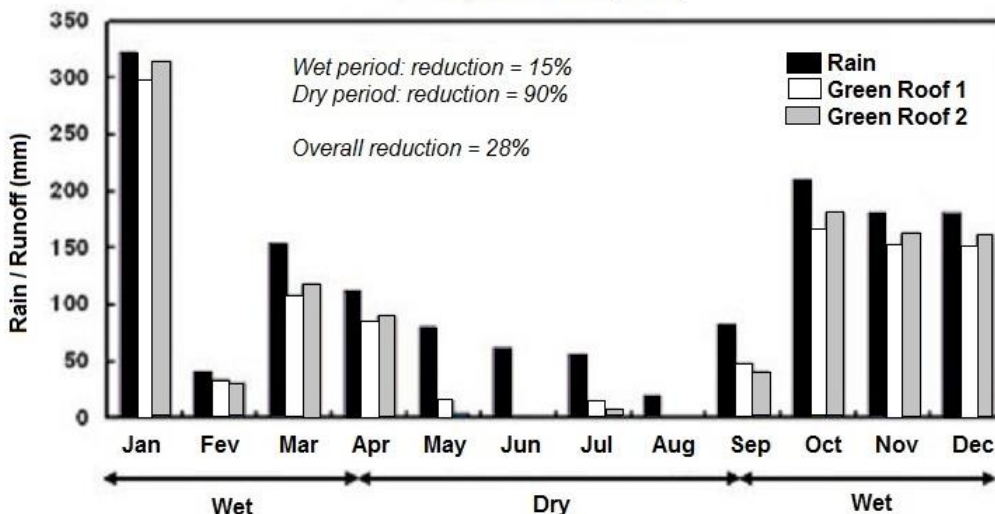
Green roofs improve air quality

Plant leaves trap dust particles from the air, and evapotranspiration cools ambient temperatures.

- Less ground level ozone + less heat = less smog.
- Reduced Urban Heat Island profile. **(document 3)**
- Less need for health care services result in societal cost savings.

Document 2:

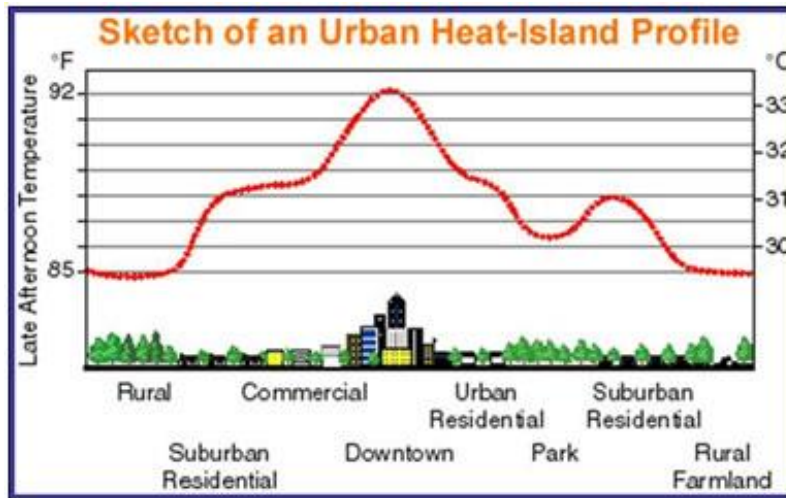
Rainfall and Roof Runoff at GRRF
(Jan 1, 2005 - Dec 31, 2005)



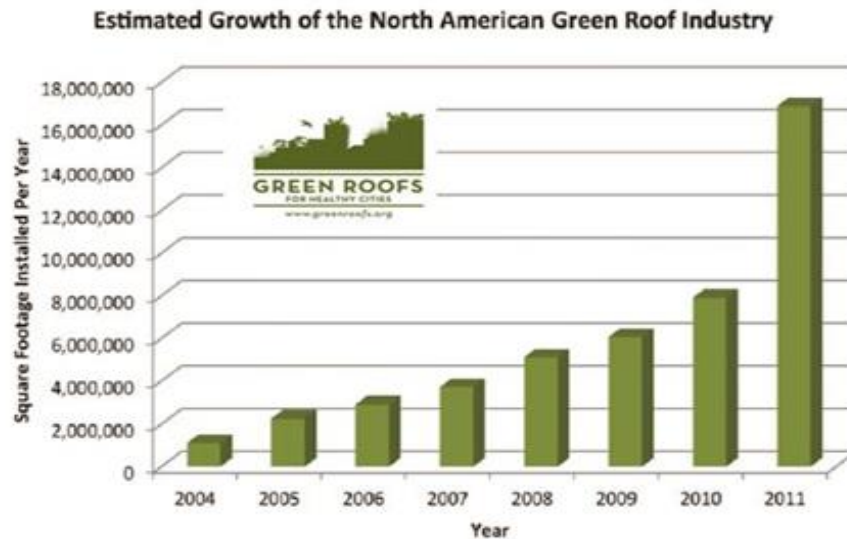
¹ Runoff : écoulement

² To overwhelm: submerger

Document 3:



Document 4:



Adapted from: <http://commons.bcit.ca/greenroof/faq/why-green-roofs-benefits/>
<http://www.greenroofguide.co.uk/benefits/>

To make your presentation you may use the following suggestions :

1. Explain how green roofs contribute to sustainable development.
2. In addition to the advantages presented in the document can you think of other advantages?