



Kingdom of Bahrain

The National Initiative for
Agricultural Development

المبادرة الوطنية
لتنمية القطاع
الزراعي



Roof Garden

The National Initiative for
Agricultural Development

Reviewed by: Prof. Ahmed Ali Saled
Prof. of Soil Sciences at Arabian Gulf University.



The concept of Roof Garden

It is a new invented technology represented in partially or wholly planting the roofs of buildings with the soil that is good for planting.

This technology contains what is known as the green roof, this name does not contain cultivating plants in pots and putting them on the roof of the building, but it is given only to the roof its surface is planted.

Benefits of Roof Gardening

- It represent an excellent solutions to improve the environment, as it is an ideal choice to mitigate the effects of pollutants in addition to taming the climatic factors, "such as "reducing the assembling of rain water on roofs and improving temperatures thereon".
- Roof garden has many scientific studies that proved their positive results at more than one level, at the level of improving temperatures, it proved that when covering a 10cm concrete roof with a 10cm layer of mud planted with green grass, this helps in air cooling and increases humidity over the concrete roof and that increases roof's life through the prevention of crannies **resulting from the great changes in temperatures.**
- Heating the building in winter and cooling it in summer.
- Reducing the quantity of water leaked to the ground and that helps to reduce the pressure on drainage system.
- Reducing pollution as over the building there is a purification of air, and soil absorbs contaminants from rain water.
- Reducing noise especially in the cities full of concrete buildings.
- Prolonging building age because it works as a thermal insulation preventing the rays of sunshine on the roof especially the ultraviolet rays.
- Highly reducing the summer energy consumption.
- Food can be produced on the roof.
- It beautifies the building and raises its value.

What are the conditions for carrying out Roof garden technology?

1. Making sure of having a water proof roof.
2. Making sure of the safety of surface and its ability to bear the extra weight of the garden.
3. Making sure of the safety of the protective layer of the roof and its ability to bear climate changes and the growing of plants roots.
4. Making sure of having drainage to get rid of excessive water on the roof.

How can you plant the surface of your house?

Once you ensured all the above conditions are fulfilled, you can garden your roof using the following:

1. Green houses (Incubators)
2. Soil (agricultural soil, organic soil)
3. Hydroponic Technique (non-soil agriculture system)



Copenhagen is an obvious example of the carbon-free city

The Danish government has issued several mandatory regulations for the roof gardening in the capital "Copenhagen", where the set itself ambitious environmental goal to become the first capital of the world's carbon-free by 2025.

And in order to achieve this ambitious goal, it has to have an ambitious measures developed by the city of "Copenhagen" as a priority in its urban and environmental development process.

Denmark is one the countries whose agricultural sector contributes very well in the GDP of the country, as the legislation on the cultivation of the roof gardening has made Copenhagen greener, and who ever will contemplate the city with its few high buildings will notice the beauty effect that roof garden has added to the city, in addition to other environmental benefits, as proven in reducing carbon emissions by more than one way.

Studies have proved in Denmark that green roofs absorb more than 80% of rainwater, especially as it is one of the countries that witnessed heavy rainfalls, which contributes in reducing the pressure on the drainage system and obviates the need to expand it and develop it in the future at a substantial cost. Which means that a few million spent by the city in green roofs helped her to save few billion in expensive infrastructure projects to expand the drainage water system.

Source: (Copenhagen city website "www.kk.dk/greenroofs.com)

Other examples from different countries



How can I obtain more info?

You can get in touch with the executive office at the following:

Tel: 17171620/ 17171603

Website: www.niadbh.com - Email: info@niadbh.com