

LIVING ROOF: A NEW APPROACH TO MODERN WORLD

Divya Slathia¹, Madinat-ul-Nisa² and
Rahat Ashraf³

¹Assistant Professor, DKSGACA,
Eternal University, Baru Sahib

²JAEO, Department of Agriculture, J&K

³Assistant Professor, RIMT University,
Mandi Gobindgarh, Punjab

INTRODUCTION

With the passage of time a lot of people will start to migrate from rural places to urban and due to this there occurs limitation of land in urban areas which ultimately leads to shifting of vegetation from free outdoor space to terrace. In India it is not so much common concept, but gaining popularity now a days in metro cities. A living roof is a building's roof that is covered by plants and a growing media, and is planted above a waterproofing membrane there are many other additional layers which may also be included. A green roof, also known as a living roof, terrace gardening, roof gardening etc. It's possible to add further layers like a root barrier, drainage, and irrigation channels. Green roofs serve a variety of functions for a building, including absorbing rainwater, providing insulation, creating a wildlife habitat, increasing benevolence and reducing stress among those who live near the roof by providing a more aesthetically pleasing landscape, and lowering urban air temperatures and mitigating the heat island effect.

KIND'S OF LIVING ROOF:

Intensive roofs: these are deep or thicker kind of roof having more than 12.7 cm depth, supportive to wide range of vegetation, but are heavier and requires continuous care and maintenance, intensive roofs support 80-150 pounds of vegetation per square foot. Intensive roofs, which can include anything from kitchen herbs to shrubs and tiny trees, are more park-like with easy access.

Extensive roofs: These are shallow kind of roof and there depth ranges from 2 to 12.7 cm, these are lighter structures, requires minimum care and maintenance. Green roofs with a lot of flora support 10-25 pounds of vegetation per square foot. They can grow on a very thin layer of soil (most use specially designed composts), and even a thin covering of rock wool applied straight onto a waterproof roof can support a Sedum and moss planting.

ENVIRONMENTAL BENEFITS OF ROOF TURFING:-

- Turn down the thermostat (by adding mass and thermal resistance value)
- In the winter, green roofs can help to reduce heat loss.
- High concentration of green roofs in an urban location can even lower the city's average summer temperature.
- Reduce storm water run-off see water-wise gardening.
- See living wall.
- Filter Natural Habitat Creation see urban wilderness.
- Pollutants and carbon dioxide are removed from the air, which helps to reduce disease rate such as asthma, heavy metal and pollutants are removed from rainfall
- Assist in sound insulation of a building; the soil helps to block lower frequencies, while the plants help to block higher frequencies.
- Many living roofs can contribute to LEED (Leadership in Energy and Environmental Design) points if implemented correctly.
- Expand agricultural land.
- Water is kept by the substrate on green roofs, then taken up by the plants, who subsequently return it to the atmosphere via transpiration and evaporation.
- Green roofs not only collect rainwater, but they also control the temperature of the water and serve as natural filters for any runoff.
- By covering the waterproofing membrane with growing medium and flora and shielding it from ultra-violet radiation and physical damage, green roofing can increase the lifespan of a roof by over 200 percent.
- The installation of a green roof is predicted to boost the real estate value of a typical home by roughly 7%.
- Green roofs also have the ability to sequester carbon, which is beneficial to the environment.
- One of the most essential properties of green roofing is its ability to reduce energy consumption. Green roofing improves a building's thermal performance, allowing it to retain heat during the milder winter months while reflecting and absorbing solar radiation during the hotter summer months, allowing it to stay cooler.

DISADVANTAGES:-

- The biggest downside of green roofs is that they might cost up to twice as much to install as a regular roof.
- The extra mass of the soil substrate and trapped water puts a lot of strain on a building's structural stability.
- Some types of green roofs create greater demands on the structure's waterproofing system, both because water is trapped on the roof and because roots may penetrate the waterproof membrane.
- Another drawback is that the wildlife they attract may contain pest insects that can easily enter a home through open windows.