

# rethink/ ROOFS



## Go Green with a Green Roof

### What is a green roof?

An assembly or system, over an occupied space, that supports an area of planted bed(s), built up on a waterproofed surface at any level that is contained separately from the natural ground by a human-made structure.



Drought-tolerant Green Roof in Austin, Texas

### Why Plant A Green Roof?

The roofs of buildings absorb heat from the sun and can get extremely hot, especially in the summertime. This means more energy is needed to cool your building and your electricity costs are higher.

One way to reduce the temperature of your roof is to plant a vegetated 'green roof'. Green roofs keep their surface temperatures much cooler than typical dark-colored roofs because plants have a natural cooling ability. Dark-colored roofs can reach temperatures more than 90 degrees Fahrenheit higher than the surrounding air temperature.

### A Better Way

In addition to their cooling benefits, green roofs add aesthetic value to the structures they grace, as they enhance our environment.

They also change and improve the way we experience the outdoors, better our quality of life, provide habitat for flora and fauna, and even provide places to grow food in the city.

### Benefits

- ⤴ Reduce the temperature of buildings and the area that surrounds them.
- ⤴ Reduce the amount of energy required to cool buildings.
- ⤴ Reduce greenhouse gas emissions associated with greater energy use.
- ⤴ Improve air quality.
- ⤴ Reduce pollution from stormwater run-off.
- ⤴ Help roofs last longer so less waste goes to landfills.
- ⤴ Provide space for urban agriculture and community gardens.
- ⤴ Provide habitat for native plants and animals.
- ⤴ Serve as outdoor gathering spaces.
- ⤴ Enhance buildings' aesthetics.
- ⤴ Increase buildings' sound insulation abilities.

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## CHOOSING A GREEN ROOF

Choosing the right type of green roof for you will depend on a number of factors. Green roofs can be as simple as a thin layer of light-weight material planted over a water-tight membrane or as complex as a patented, multi-layer system sold by a private manufacturer. The cost of installing a green roof can also vary greatly and will depend on the complexity of the system and type of building beneath it. Green roofs generally cost \$8 to \$40 per square foot, but the price can increase to \$12 to \$100 s.f. if engineering or structural changes are needed.

When planning your green roof, consider the local climate and factors such as rainfall and heat, which characterize your region. Green roof systems that work in northern regions won't be suitable for Austin's subtropical, semi-arid climate. Talk to local green roof professionals to learn how to design for your unique local climate. Also, think of a green roof as a holistic system that will grow and change over time. Use native and drought-resistant plants that will thrive long-term and use reclaimed water whenever possible.

### Extensive Green Roof

Extensive green roofs are thin and light-weight with soil depth of six inches or less. They're planted with drought tolerant, self-seeding vegetation and require little to no irrigation, fertilization, or maintenance once established. These types of roofs generally cost less per square foot than heavier roofs with deeper soil. They're well-suited for buildings with weight-load restrictions and weigh between 10 - 35 pounds per s.f. fully saturated. These roofs are installed primarily for their environmental and cooling benefits.



### Intensive Green Roof

Vegetated roofs with a planting media (special lightweight soil) deeper than 6 inches fall into the intensive category. They are marked by their ability to support larger and a greater diversity of plants. Fully saturated, intensive roofs can range in weight, from 50 pounds per s.f. to 300 pounds per s.f.

These roofs require structural engineering upgrades, irrigation, feeding, and maintenance because they weigh more and have more vegetation. They are more similar to ground-level gardens. These green roofs can be used as rooftop gardens; they will expand your home's usable space and can be a great addition to your home. You can add a vegetable or herb garden and even small trees.

## Resources

City of Austin

[www.austintexas.gov/department/green-roofs](http://www.austintexas.gov/department/green-roofs)

Growers – Austin nonprofit group

[www.growersaustin.com/home.html](http://www.growersaustin.com/home.html)

Lady Bird Johnson Wildflower Center

[www.wildflower.org/greenroof/](http://www.wildflower.org/greenroof/)

Environmental Protection Agency

[www.epa.gov/hiri/mitigation/greenroofs.htm](http://www.epa.gov/hiri/mitigation/greenroofs.htm)