

Massachusetts Master Gardener Association

FACT SHEET



Have Gardening Questions? The **Master Gardener Help Line Hours** are 10 a.m. – 2 p.m. on Fridays (all year) as well as Wednesdays (March-November) and Mondays (April-October).
Phone: 617-933-4929 Email: mghepline@masshort.org.

Green Roof Gardens

Growing plants on rooftops is an old concept that has evolved from simple sod roofing to roof gardens to new, lightweight extensive green roofs. Modern green roofs are becoming popular and have significant environmental and social benefits - they can improve building's energy performance, improve air quality, create a habitat for wildlife, absorb rainwater, reduce storm runoff, mitigate urban heat island, and provide a place for you to enjoy a garden in the sky.

A green roof garden is planted on the roof of a building and partially or completely covers the roof with vegetation. It is composed of plant materials, a growing medium, waterproof membrane and layers such as a root barrier, drainage, and irrigation. There are two types of green roofs: an **extensive roof** -- less than 6 inches of soil planted with hardy cover such as sedum; and an **intensive roof** -- essentially a garden, with deeper soil that supports a wider variety of plants, but which will require maintenance such as watering and weeding. Green roof gardens can be planted not only on urban and suburban buildings and homes, but on sheds, dog houses, garages, even birdhouses-- essentially any accessible flat or slightly sloped rooftop surface. Although often debated, container gardens on roofs are not generally considered to be true green roofs. Rooftop ponds are another form of green roofs which can be used to treat wastewater.

Greening a roof is not simple or cheap. Beginning with a black roof, insulation, a waterproof membrane, and a barrier to keep roots from poking holes in the membrane are installed. On top of that there is a drainage layer, such as gravel or clay, then a mat to prevent erosion. Next is a lightweight soil and finally, plants.

If you'd like to start a green roof garden of your own, here are some things that you might want to take into consideration:

Safety

First and foremost, you want your garden to be safe. Fences are essential to prevent those on the roof from falling off and to protect those on the ground from falling tools, etc. Consult your local building department for any necessary permits and regulations about fence height.

Weight

Wet soil is heavy. So too is a foot of wet snow on top of that soil. So you must figure out the sustainable weight load of your roof (consult a structural engineer), as too much load in the wrong places can cause structural damage or even collapse.

Containers

You will need lightweight containers that allow drainage. For maximum energy benefits, the container should sit flat against the roof. There are several companies that sell kits for green roof gardening that include a modular planting system with the necessary barriers and instructions for optimum installation.

Watering

In the hottest months, daily watering may be necessary. One solution is to run a hose up the side of the building attaching it to drip lines and a timer.

Plants

Plants suitable for extensive green roof gardens must tolerate extreme rooftop conditions and will depend on your available weight load and available irrigation. Intensive green roof gardens will also take into consideration weight, but will require irrigation and maintenance. Generally, the plants that do well are sun loving, drought tolerant, have a shallow root system, and can withstand windy conditions. Some vegetables that have proven to do well in a green roof environment include herbs, lettuce, beans, peas, kale, spinach, zucchini.

Getting Started

Do your research! While planting the roof of a shed or dog house may be a manageable task, consult green roof experts and a structural engineer before any installation on a building that will be inhabited by people, either residential or commercial. Once you've done that, have fun picking great plants to beautify your new green roof.

The Massachusetts Master Gardener Association is a non-profit organization whose mission is to share knowledge and experience with the public through outreach programs in education, horticulture and gardening; to provide the Master Gardener Training Program to interested members of the public; and to provide graduates of the Master Gardener Training Program with educational and practical opportunities to extend their knowledge and interests in gardening and related topics. <http://www.massmastergardeners.org/>