

GREEN ROOF

DEFINITION

A green roof is a layer of plant material that is placed on top of a flat or slightly-sloped roof along with a waterproof membrane and a growing medium. The plants are typically drought-tolerant paired with light-weight soils. The types of plants that make up the vegetation typically consist of succulents, grasses, wildflowers, and aromatic herbs to support insect, wildlife, and human needs. They also absorb and filter rainwater, provide insulation, lower air temperatures, provide noise attenuation, and increase the lifetime of your rooftop waterproofing by protecting against UV rays.

There are several types of green roofs with different depths of growing medium, but the focus of this home project is a less intensive green roof on a smaller scale that can range from covering a dog house, a storage shed, a detached garage, or a small portion of your home. Special soil mixes are used to help reduce weight and retain water. Using regular dirt or soil is NOT recommended.

Safety is of a high concern with green roofs. Adding extra weight to a structure not designed for the extra load can cause collapse or other structural issues. Professional advice is important when considering a green roof over living spaces.



BEFORE



STANDARD ROOF SHINGLES

AFTER



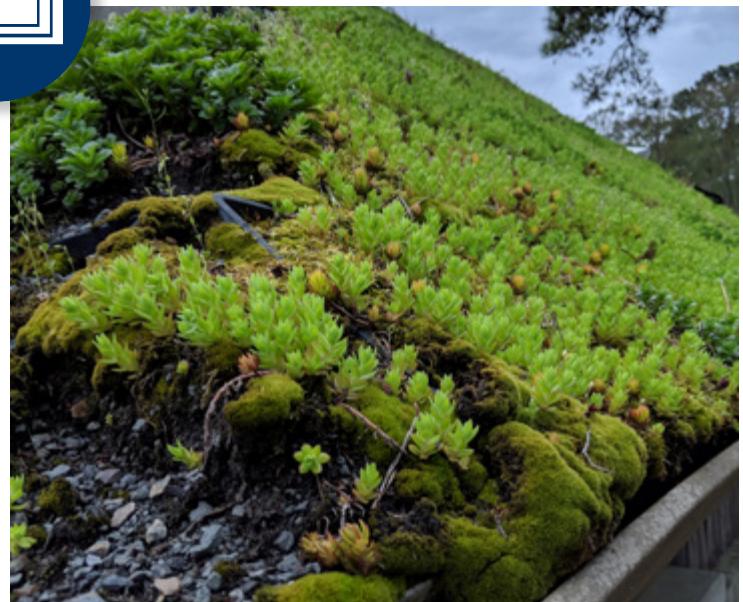
PLANTED WITH SEDUMS

EXAMPLES

SEDUMS



SEDUMS CLOSEUP



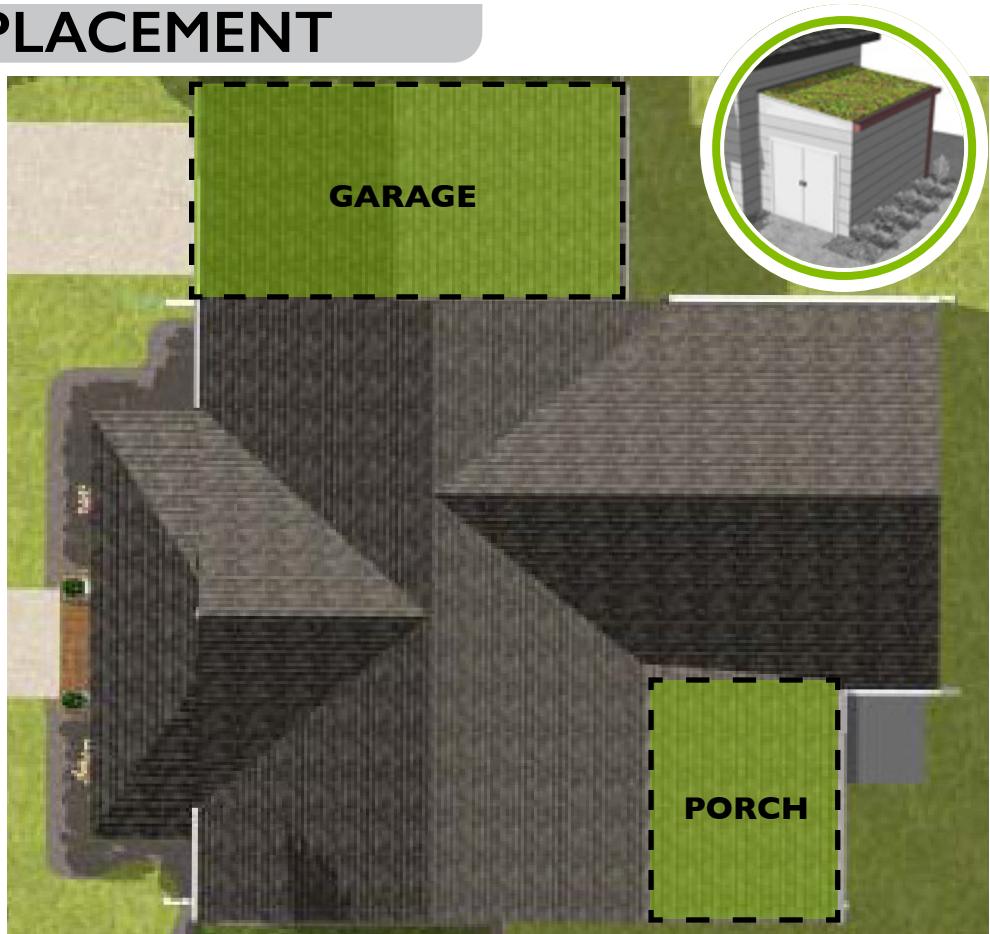
BE MINDFUL OF PLACEMENT

A few key factors are going to determine the location of a green roof:
• Over non-living quarters
• Roof pitch
• Structural capacity

The size is determined by how much weight the structure can hold. Materials in the structure that are damaged or old may have to be replaced to meet requirements. For this reason an extensive form of greenroof with a profile of **2 - 8** inches of growing soil is recommended.

Can the existing structure take the extra weight of the green roof?

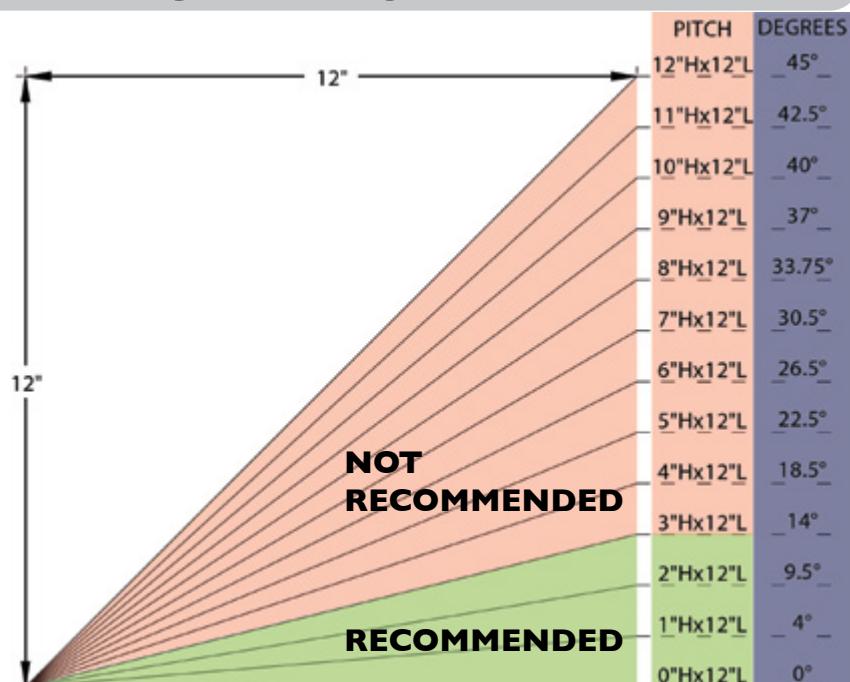
- Simple lightweight green roofs weigh between **13.0-30.0** lb/sq.ft (**60-150** kg/m²). If you are unsure of the loading your roof can take, consult an architect or structural engineer before



you do anything else. When calculating the weight that the green roof will impose on the roof, you must also take into

account the weight of the green roof when saturated with rain or snow.

ROOF PITCH DIAGRAM



It is recommended (in green) to only use a roof with a slope in the range of **2** to **14** degrees.

Greater than **14** degrees (in red - not recommended) requires support measurements to be in place to keep the soils from sliding off the roof and crashing to the ground.

It is also recommended to have a perimeter around the edge of the roof to access the planted area for containment and as needed for service access.

GETTING STARTED

The cost of a green roof project is determined by the area covered and materials used. Here are a few questions to ask before you start: Is it above living space? Can the structure support the weight? Can you get the materials on top of the roof? Is the roof pitch too steep?



DO IT YOURSELF (DIY)

If you intend to perform this work yourself, see the lists for general tools and materials you may need to help you get started.



Tools & Materials:

- Personal Protective Equipment (PPE)
- Shovel
- Rake
- Ladder
- Garden hose & bucket
- Tape measure
- Utility knife
- Wheelbarrow
- Hammer or mallet
- Level
- Line level
- Irrigation tubing
- Landscape fabric
- Light weight soil mix
- Edging material such as aluminum or steel edging



HIRE OUT THE WORK

Contact a [CBLPro](#) licensed and bonded landscape or site contractor. Prices will vary on amount area to be covered and structural capacity.



SPECIALTY ITEM or KITS

Kits and trays can be ordered Online or through a specific supplier.



MAINTENANCE

Seasonly

- Add plants to fill in bare spots.
- During dry season plants may need to be watered and during periods of severe drought.
- Check drainage outlets for debris and vegetation.
- Clear gravel margins of vegetation.
- Re-plant bare areas with seeds, plug plants, or cuttings.

Yearly

- Remove dead, diseased, or damaged plants.
- Check structure for cracks or leaks.

Access

- Maintenance requires access to the roof and likely use of materials and tools.

- Consider how this will be addressed based on your situation.
- Consider how and at which location will you climb up onto the roof and move around the planted area.

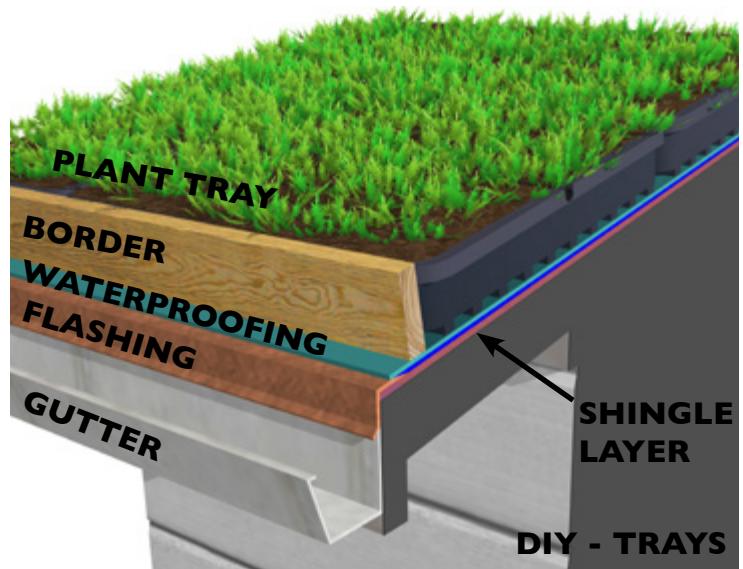
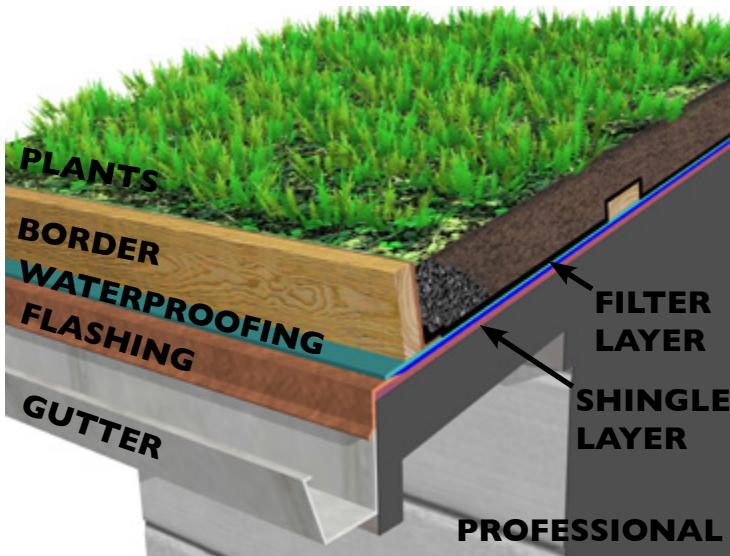


HOW TO

It is recommended to convert smaller structures on your property such as a detached garage, a shed, or a dog house if you are doing the work yourself. If converting a roof on your home, you should hire a professional to investigate your structure and to construct the green roof rather than doing it yourself.



- Check local codes and permit requirements.
- Always take care when working off the ground.



STEP 1: Evaluate

Select the structure with appropriate slope and materials that will be adequate. Reference the chart.

Specific layers of materials are added that are not used on regular roofs. The following, in order from bottom to top, are the layers in general terms:

- Waterproof layer
- Drainage layer
- Filter membrane
- Growing medium (soil mix)
- Plants

STEP 2: Waterproof

Add waterproof layer. Waterproof according to manufacturer's specifications based on material used.

STEP 3: Border & Filter Layer

Frame in the growing area and leave space around edge for access. Be sure there is free flow of excess water off the roof.

The border is used to pin the filter fabric or hold the trays in place.

Pro Tip: To prevent damage to materials or compacting of soil during planting lay down plywood to accommodate foot traffic during the install.

STEP 4: Engineered Soil & Plants

Add and spread out growing media mix evenly over filter fabric surface. Install selected plants once soil is in place. OR. Place trays if DIY. (Trays may be pre-planted before installing into place) Typical plants to install are sedums, herbs, and small perennials.

STEP 5: Inspect & Water

Water plants and soil thoroughly to ensure good coverage and growth.

Project Completion!

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