

Build your own Little Green Roof

Type – Wooden storage shed with a pitched roof



GREEN STREETS

What is a Green Roof?

A green roof is the roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems.

Green roofs are installed on top of buildings for a variety of reasons such as creating a recreation space for local communities, to establishing habitats for insects, birds and bees in heavily built up urban areas.

Green Roofs are also an excellent tool for helping to reduce the impact of climate change, particularly in towns and cities. They can prevent localised flooding by reducing the volume and intensity of water reaching urban drainage systems by absorbing rain water and storing it. They also prevent heat from escaping out of buildings during the winter and do the reverse in the summer by absorbing the sun's rays. This decreases the need for internal heating in the winter and air conditioning during the summer.

In order to install a green roof there are a number of tasks that need to be carried out before any work can start including obtaining planning permission, commissioning a structural survey and meeting a set of building regulations in relation to the building's thermal performance.

Little Green Roofs are designed to raise awareness of green roofs and their benefits. They offer all of the benefits of a green roof (on a much smaller scale) whilst avoiding the need for planning permission and structural surveys if they

are installed on an uninhabited building such as a bike shed, school toy container or allotment tool store.

Considerations before you start:

Dimensions – You will need to measure the dimensions of your roof accurately so that you can purchase the right amount of wood for the frame. You will also need a pond liner that covers the whole of the roofs surface plus a small overlap.

Strengthening - When a green roof is installed on top of a structure like this the timber frame and growing medium adds additional weight. Further weight is added during periods of rainfall/snow. The structure in this example did not need any additional support as it is relatively new and the roof has been well strengthened initially however **some shed roofs will need supporting joists installed inside. You should always seek advice on whether your building will need additional strengthening to support a green roof.**

Materials:

6" by 2" tannalised soft pine wood - for frame

4" by 2" tannalised soft pine wood – for internal frame

5" screws

2" screws

8 x 90 degree angle metal brackets

Wood end grain preserver

Garden pond liner

Graded soil – A mix of good quality top soil and compost, ideally graded to no less than 5 mm. If graded too finely it is prone to blowing off in the wind. Avoid a mix with too high a proportion of soil to compost as this will be too heavy.

Perlite – A naturally occurring mineral with high water content or alternatively use – Leca (Light Expanded Clay Aggregate) – another light weight naturally occurring material – BOTH will improve drainage, retain water during periods of drought and insulate roots during frost.

You should be able to purchase all of these items from a DIY store or a garden centre, although they are often much cheaper if bought online.

The graded soil and perlite should be mixed at a ratio of 2:1. This will provide a light weight growing medium. Depth of the growing medium should be approx 4" (10cm) to ensure there is enough room for plant roots whilst not adding an excessive amount of weight.

Tools you will need:

Ladders

Tape measure

Pencil – for marking cutting points on the wood

Hand saw

Stanley knife – for cutting pond liner

Paint brush – for applying wood end grain preserver

Hand held electric powered drill

Staple gun and staples – for fastening pond liner to roof

Spade – for mixing growing medium

Buckets – for carrying growing medium onto roof

Trowel – for planting

Suggested plants:

Armeria 'Nifty Thrifty' – Perennial evergreen alpine plant – small bright pink flowers

Campanula portenschlagiana 'Mrs Resholt' – Evergreen alpine plant – blue flowers

Nepeta cataria (Catmint) – Perennial, flower colour depends on variety

Dianthus starlight – Mat forming, evergreen perennial – blue green foliage, light pink flowers

Tiarella wherryi (Foam flower) – Ground covering plant with short spikes of tiny white/pink flowers

Festuca glauca 'Elijah Blue' (Blue Fescue) – Compact plant forms small mounds of tufted ornamental grass

Festuca 'Golden Toupee' (Golden Fescue) – Compact mound forming deciduous grass – bright yellow in spring, grey/green later

Koeleria glauca (Blue Hair Grass) – Tufted, semi evergreen perennial grass – Grey green leaves turn blue green later in year

Leucanthemum hosmariense (variety of daisy) – White daisy flowers appear continuously from late winter until the following autumn

Sedum acre 'Aureum' – sedum plug plant

Sedum cauticola 'Coca Cola' – sedum plug plant

Sedum makinol – sedum plug plant

Sisyrinchium 'Sapphire' – Alpine, semi evergreen perennial

Stachys byzantina – Low spreading evergreen perennial – small white or pink flowers

Stipa tenuissima (Feather grass) – compact, deciduous grass – green/gold in colour

Thyme 'coccineus' – Thyme with large rounded leaves and crimson flowers

Origanum vulgare 'Aureum' (Golden Marjoram)

Salvia dorri (Purple sage)

Allium schoenoprasum (common chives)

Allium tuberosum (Garlic/Chinese chives)

How to build your Little Green Roof:

1. Place the garden pond liner over the shed roof



2. Constructing the frame: Measure the length of the apex and cut the 1st beam of wood to size, making sure both ends are flush with the roof's edge as shown below.



3. Coat any newly exposed ends of the timber with wood end grain preserver.



4. The next piece of timber will run from the apex to the end of the eave, as shown in the picture below. Mark with a pencil the point where the wood meets the edge of the eave and then cut using a saw.



The end of the timber closest to the apex will need cutting at a slight angle to ensure both pieces fit together without any gaps, and it should look like this:



5. Using 5" (13cm) screws, screw through the timber that runs along the apex, into the second piece of wood that has just been measured and cut. Ensure someone is stood at the opposite end to you to hold the apex beam and see it remains in position.



6. Repeat this until you are left with four pieces of wood attached to the apex timber. (The picture below shows 2 pieces attached and this is reflected on the opposite side). Some of the screws will need inserting at an angle.



7. Fix the pond liner to the sides using a staple gun.



8. Fix a piece of timber along the eave to make a four sided frame.



9. Repeat on opposite side.



10. To prevent the growing medium and plants from slipping down the roof, a number of wooden panels will now be fixed into the square frame.



Continue until you are left with several square compartments. Note how the compartments are off set from each other which reduces the pressure (or loading) on the horizontal panels.



11. Install 90 degree angle brackets in each corner of the inner frame using 2" (5cm) screws



You may have noticed that the frame has not been physically attached to the shed roof. This is because the frame hangs over both sides of the roofs apex which balances the weight evenly on either side.

12.Both sides of the roof should now look like this:



13.Mix the graded soil and perlite at a ratio of 2:1



14. Start filling the box compartments within the frame to a depth of approx 4" (10cm). Dead wood can be also used to fill compartments and will attract insects and invertebrates



15. Once the compartments are filled.....planting can begin...



...and by the end your roof should look like this:

