

# Eco Space Green Roof Maintenance Guide

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There is a common misconception that extensive green roofs, and sedum plants in particular, are always green and that from ground level they resemble grass. This is misleading, as the types used on roofs consist mainly of low growing, drought tolerant sedum plants together with other species such as moss and grasses

The appearance of the vegetation within a sedum blanket extensive green roof will change year on year, dependent upon fluctuations in the seasonal weather throughout the period. It should also be expected that more grass and moss will be present during the wetter months, because the conditions will be ideal for these species to exist, although they will tend to die off during the dry summer months, as the free-draining growing medium will not hold sufficient moisture for them to survive.

It is another misconception that extensive green roofs are maintenance free, this is wrong and they are best described as 'low maintenance' rather than 'no maintenance'. The sedum blanket used on your roof contains little in the way of natural nutrient, so fertiliser must be applied annually to ensure that the plants become resistant to extremes of weather and temperature.

The sedum blanket contains approximately 8-10 different plant species, some very similar in appearance to others but being more drought tolerant. Not every species incorporated will survive and the more dominant will be expected to prevail over time because they will adapt better to a particular location. Regardless of this, we would anticipate that at least 50% of the species will flourish.

In the early spring the first signs of life returning to the vegetation within a sedum blanket green roof are led by any grasses present, quickly followed by a general "colouring up" of the sedum foliage, with other species following suit shortly thereafter. The growth and flowering of the individual species within the vegetation mix through the late spring and summer will be dependent upon the weather prevailing at the time, which will also determine which species will be most prominent in any given year.

In the winter, sedum plants will appear to shrink back, the leaves will become smaller and turn red/brown in colour as they prepare themselves to withstand the coming winter frosts. This gives the vegetation a generally red/brown hue in the late autumn and winter months, which is sometimes mistaken for the plants being distressed, when in fact they are in optimum condition for the time of year.

## **General Maintenance**

General maintenance is normally carried out annually during springtime. However, certain tasks which will be dependent upon the location of the roof, such as the removal of weeds, seedlings and accumulated leaf litter from overhanging trees may also need to be done during the autumn. The following procedures should be carried out as indicated below, in order to ensure that the roof is maintained in good condition and to protect the validity of the waterproofing guarantee.

### **Preliminary Maintenance Procedures:-**

- Ensure that you have planned for safe access onto to the roof and that relevant Health and Safety procedures are followed when working at roof level. For further information please refer to the [www.hse.gov.uk](http://www.hse.gov.uk).

- Remove all debris from the roof surface, taking particular care to ensure that all chute outlets, gutters and downpipes are clear

**Note!** Roofs in the vicinity of taller trees will need more frequent maintenance. We recommend removing dead leaves during the spring and again in the autumn, to ensure that they do not damage the roof vegetation.

- Remove the lids of any Outlet Inspection chambers. Ensure that all rainwater outlets and downpipes are free from blockages and that water can flow freely away.

- Ensure that any protective metal flashings and termination bars remain securely fixed in place. Repair or renew as necessary.

- Examine all mastic sealant and mortar pointing for signs of degradation.

### **Vegetation Maintenance**

The following tasks should be carried out annually: -

#### **1. Plant Encroachment.**

Any vegetation which has encroached into drainage outlets, walkways and the vegetation barriers (pebbles) should be removed. The vegetation removed may be set aside and used to repair any bare patches if required (see below). If movement or settlement of the pebble vegetation barrier has occurred, additional washed stone pebbles similar to the existing should be added.

#### **2. Monitor the colour and rate of growth.**

The colour and rate of growth of the vegetation should be reviewed to establish the health of the plants. It should be noted that many factors can affect the growth and colour of the vegetation and that plants tend to be greener in wetter, mild conditions (springtime) and where the roof pitch is shallow.

### **Notes**

- During May, June and July, sedum plants flower and you will see a mixture of colours - predominantly whites, pinks and yellows with some purple. The foliage of some species of sedum, such as Sedum Album "Coral Carpet", blush red naturally during the summer and autumn, and so the vegetation can take on a more `red/brown appearance. This becomes more noticeable once plants have flowered, leaving remnants of dry brown seed heads. The best visible indication of the health of a plant is if the leaves are fleshy and contain plenty of water.

- When exposed to extreme conditions, sedum plants have a tendency to turn a deep red colour. This is a natural phenomenon and is important to help the plant to acclimatize, ready to survive a cold winter or hot summer. This will usually occur during extreme cold weather as well as periods of prolonged drought, in very exposed locations or when the plants are in distress through lack of nutrient (fertiliser).

- If sedums are showing signs of distress, but have received regular rainfall, then the most likely problem is a lack of nutrient and a fertiliser should be applied.

- Only a relatively few species of sedum will persist in partial and full shade, and they will generally be greener in colour and grow "leggier" in these locations. There will be a significant variance in the growth and colour between the plants growing in full or partial shade and those in full sun, and this should be recognised as a feature of the living nature of each individual roof.

### **3. Weeding.**

With the exception of saplings, which should always be removed, weeds in an extensive green roof should be considered as a problem only of aesthetics. If considered excessive, they can be removed either manually or by using a 'spot weed wipe', ensuring that care is taken to follow specific instructions regarding the use of any proprietary products. After the removal of weeds and saplings, treat the affected area as if it were a bare patch (see below). All extensive green roof installations will at times include some moss and grass.

### **4. Repairing Bare Patches.**

Bare patches can be easily repaired and this is best done during the main growing seasons of March/April or from late August until the end of September. Take vegetation cuttings from surrounding areas of abundant growth and place on the bare patches, pressing gently into the soil. A light sprinkling of sand mixed with compost should then be dressed over the affected area to improve the uptake of the cuttings. The best results will be achieved if this work is carried out during spring maintenance and the affected area is kept moist for a short period afterwards.

#### **Note**

In areas of extreme exposure or where localised wind-swirl is caused by adjacent structures, it is possible that both the vegetation and substrate will be disturbed by periods of high wind. Should this occur, consideration should be given to how best to secure the installation against similar conditions in the future prior to re-instatement

### **5. Fertiliser**

The sedum blankets used on your roof are grown in a shallow growing medium which contains very little nutrient, so the annual application of fertiliser is crucial to ensure that the plants remain healthy. Fertiliser should ideally be applied during March/April, as it helps the plants to prepare for extreme weather conditions and flowering whilst also allowing the different species to gain sufficient nutrients without competing against each other. We would recommend that a slow release fertilizer such as the Miracle Gro Controlled Release Plant Food, which is available from most reputable garden centres, be used for this purpose. Areas of up to 30m<sup>2</sup> may be applied using either a hand held spreader or strewn by hand from a bucket. Larger roofs should always be done using a trolley applicator. Always apply the fertiliser at the given rate written on the packaging. It is recommended that the fertiliser is lightly 'watered in' immediately after application, to avoid "burning" of the foliage, which may occur if fertilizer pellets settle on the leaves. Dung-based organic fertilizers should be avoided.

The sedum plants used in the sedum blanket absorb and store water in their leaves, which they then use to survive during periods of drought. The purpose of the moisture retention fleece, which is incorporated into the system beneath the blanket, is to hold water after rainfall to give the plants sufficient time to take on as much water as possible. The moisture retention fleece is not a water storage medium, so you should not

be concerned if it dries out during periods of dry weather. If drought conditions arise it is important to check the plant leaves to see if they are still fleshy and not completely dried out. This is particularly important on sites where the exceptionally windy and exposed location can dry out the blanket.

Watering of the sedum should only be carried out during prolonged periods of hot, dry weather, or if the sedum plants are showing signs of distress. This is best done at dawn or dusk to minimize unnecessary evaporation. Then repeated every 4-6 days for the duration of the hot weather conditions

**Note** - continuous daily watering is neither recommended nor necessary, and will only promote weeds and other unwanted plant species.

### **Support**

Extensive roofs should require only minimal maintenance. Bauder is happy to offer advice on any issues concerning your green roof and any such query should be forwarded to the Bauder Green Roof Technical Department at the address below in the first instance. We believe our products and systems are of the highest standard and are always prepared to discuss any queries or concerns that may arise. It is always of great help if you can provide photographs of the affected area(s) to accompany any such queries.

**Note** - In the event of any query arising which it is thought may affect the condition of the system, then Bauder should be contacted at the address below. We cannot accept responsibility for any problem or failure due to use outside those parameters for which the system was designed or 'acts of god' beyond our control e.g. extreme weather conditions or damage through pests.

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