IMPROVING THE ENVIRONMENTAL IMPACT OF THE GARDEN SHED

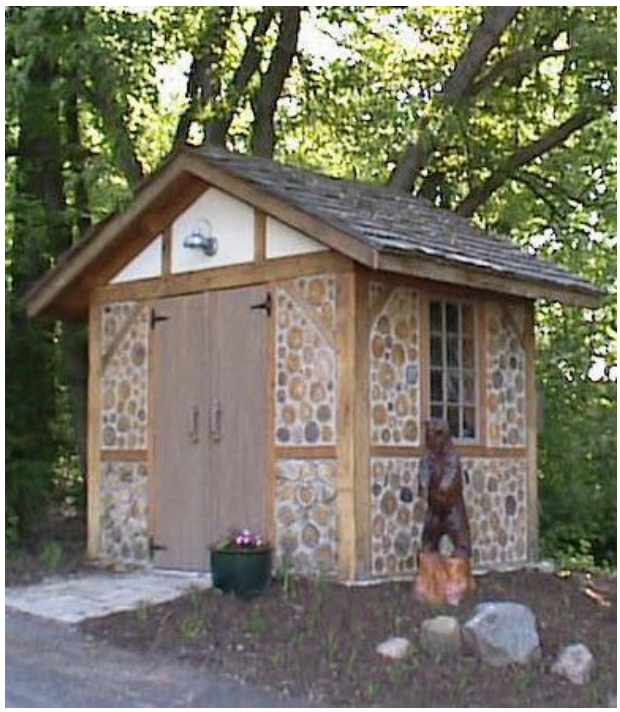
John Coupe[1]

Sheds have fascinated me from an early age. Encouraged by my father, I spent many happy hours tinkering in our outbuildings, fascinated by wood and metal and discovering how to work with these wonderfully versatile materials.

Today, I am a practising consulting structural engineer working in the UK. I design buildings and structures ranging in size from domestic extensions to large multi-storey residential and commercial developments using steel, concrete, masonry and timber.

In 2008, following the recognition of a need for additional storage at home due to a young and growing family, I decided to share some of my knowledge about structures by writing about sheds on the website www.secrets-of-shed-building.com. The knowledge provided on the site has an annual readership of over 500,000. The main focus of the website is as a resource for those looking for ideas when building their own shed, but also ventures in to reviewing some of the more commonly available pre-fabricated sheds.

Running the website has given me a good insight into how sheds are used and constructed in many parts of the world and the problems experienced by their users.



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INTRODUCTION

Rattus Norvegicus, the brown rat, is thought to have originated in northern China. This rodent has now spread to all continents, except Antarctica, and is the dominant rat in Europe and much of North America—making it one of the most successful mammals on the planet. With rare exceptions, the brown rat lives wherever humans live, particularly in urban areas.

The common garden shed is found in just as many places as our friend Mr Rat. However, it is sheds, not rats, that are the focus of this article.

KEYWORDS

sheds, garden offices, green roof, sustainable building, insulating sheds

SO HOW MANY SHEDS ARE THERE IN THE UK?

According to the last census, the UK has a population of approximately 64 million people living in 26 million households. Estimates of the number of sheds aren't as accurate, but one recent estimate by a leading shed supplier put the number at 30 million. Estimates of the number of sheds sold each year put the number at around 1.5 million. However, the total number might depend on your definition of garden shed.

DEFINITION AND CONTROL OF GARDEN SHEDS

The term 'shed' should probably be expanded as it no longer just refers to the small timber building at the bottom of a garden used to store your gardening tools. There are still plenty of traditional style garden sheds in use today, but perhaps the major change has been in the increased use of garden buildings for work and leisure activities.

Due to the development of communication technologies there has been a large increase in the number of people working from home. This has led to the development of the garden office as an overflow space when space inside the family house is at a premium.

High property prices in the UK have also contributed to an increased use of the garden buildings for leisure space and sometimes overnight guest accommodation. There are limits on the size of garden buildings and these are laid out clearly by the Government's Department for Communities and Local Government as permitted development. The rules are detailed and for full information follow: http://www.planningportal.gov.uk/permission/commonprojects/outbuildings/miniguide.

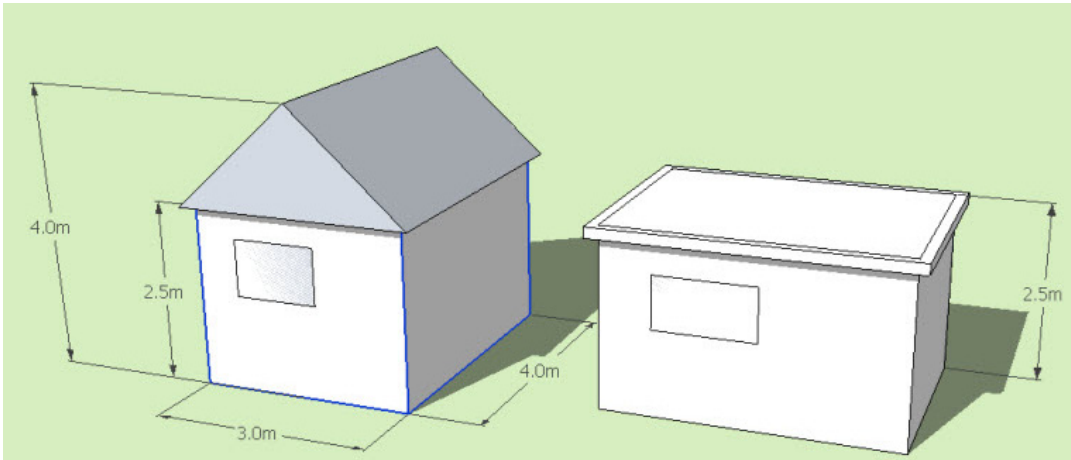
However, the following gives a flavour of what is allowed.

JUST WHAT IS PERMITTED DEVELOPMENT?

Permitted Development rules specify exactly what size and use of structures can be built in a domestic garden without the need to formally apply to the local council for permission.

Typically, what is considered a shed in the UK is defined in the planning regulations as an outbuilding with a floor area of less than 15m², for a pitched roof the maximum height to eaves is 2.5m and height to ridge of 4m, for flat roof buildings the overall height limit is 2.5m. Other regulations stipulate permitted distance to boundaries and location in relation to the principal building on the plot; however, this gives an idea of the maximum size of building that we are considering here.

An interesting point is that buildings with a floor area of less than 15m² are not required to comply with any Building Regulations. Buildings exceeding 15m² may still be built without planning permission but must to comply with building regulations.



Limiting dimensions for UK sheds for permitted development

There are also limits on the permitted development that sheds can be used for.

USES OF SHEDS

Traditionally, sheds are used as storage for garden and outdoor equipment or as workshops. However, with the growing trend to work from home, they are often used as garden offices, gyms, and leisure space. The general planning rules permit the above uses but do not allow sheds to be used as residential accommodation or for the use employing others, unless specific planning permission allowing a change of use is obtained.

The above is a summary of the situation relating to planning control of sheds in the UK. From my experience each country has slightly different rules relating to the permits required for and uses of outbuildings. The purpose behind the regulations is to prevent the uncontrolled construction of sheds whilst at the same time not imposing an excessive amount of red-tape and form filling.

Now that we have a concept of the spread and use of sheds let's move on to how the building of sheds could be improved and how the impact of shed construction on the environment can be reduced by consideration of the following points:

1. Foundations and fabric
2. How to extend the life of your timber shed
3. How to reduce the power consumption of your shed
4. Impact on local environment

1. FOUNDATIONS AND FABRIC

One reason that the brown rat is found in countries throughout the world is its adaptability. Of course, the same applies to sheds! As mentioned earlier, there is no requirement for

buildings below 15m² to comply with building regulations. This means that there is a large scope for building designers to experiment with all sorts of types of construction to come up with the shape and form that most suits the local environment. The basic form of the shed is very adaptable and with minor modifications can be designed to resist environmental extremes from high winds, heavy snow, high and low temperatures to torrential downpours.

The two main components that form the bulk of a shed are the foundations and the superstructure.

Foundations

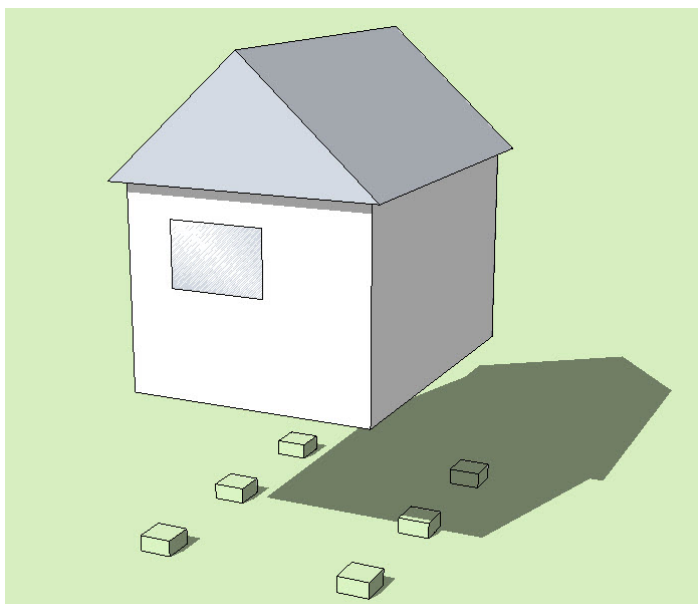
The foundations of a shed are often underrated as to their impact on the environment. Sheds are relatively light structures and the two main requirements of the foundations are that the shed should not move excessively and also that the shed should not suffer relative distortion.

The most 'over the top' foundation type is the concrete raft type foundation. This is more than adequate for any shed and with its large cementitious content has a large amount of embodied carbon.

To reduce the carbon footprint of the shed, 'piers' can be used to support the shed locally at points beneath the footprint of the shed. This form of foundation uses less material and also much less work is required to create a strong and durable support. Shed piers that form these points of support can be formed in a variety of ways:

For the very lightest structures metal ground anchors can be used; these components can be screwed into the ground and will support loads from 400 to 1,300 kg. These anchors are light, inexpensive, can be installed without the need for powered tool, and they are also re-usable if the structure needs to be relocated.

For larger structures, locally excavating below the frost line and back filling the hole with a free draining crushed rock is a good approach. The foundation/floor structure can then be built off this level. The capping to the rock could be bricks laid to the same level at each foundation point. Many professional shed companies have proprietary shed bases that have a screw adjustable cap for easy and quick levelling. Once again, these components can be re-used.



Exploded view showing Pier type foundations

The important point about the shed pier foundation is that the load from the shed is transmitted through the top soil to a more solid and stable stratum beneath. In the UK getting down to soils that are not affected by seasonal movement due to frost is a matter of going down about 400mm. However, in parts of North America this can mean going down a metre or more to produce a foundation for the shed below the influence of frost.

To form foundations in frost susceptible areas, holes are dug and then cardboard tubes, known as sonotubes, are used to form 'mini piles' to transmit loads to ground below the frost zone. The smooth sides of the concrete piles allows the ground to expand and contract around the pile as the ground freezes and thaws, without it getting a grip to lift up and distort the shed.

The foundations in contact with the ground generally support a substructure of treated timber that is resistant to the effects of damp conditions. This then forms a platform on top of the piers to form the floor and support the superstructure of the shed.

SHED SUPERSTRUCTURE

Traditional materials for forming the superstructure of mass produced sheds are timber, steel, and plastic. Builders of more bespoke structures and DIY builders predominantly use timber as the construction material of choice. Of all the shed building materials, timber is the most easily worked and versatile. Well detailed and constructed sheds built of timber can be durable and long lasting structures.

Timber

Timber, being a naturally occurring material with minimal processing, should be the most environmentally friendly of all of these materials. The tree as it grows absorbs carbon and locks it up in the structure of the timber. However, there are a couple of factors that need to be considered to ensure that the benefits of using this marvellous material are maximised. Environmental problems that affect the use of timber in the UK are the continued search for an environmentally friendly but effective timber preservative and that a large amount of timber is imported. Sheds are most commonly built from softwood that requires some chemical preservative treatment to enable it to become damp and insect resistant.

There has been some progress in the use of more environmentally friendly preservatives in the UK over recent years. The use of creosote was banned by the EU in 2002 and the use of CCA (Copper Chrome Arsenic) preservative in 2005. The predominant preservative in use today is the Tanalith E process, which still contains copper and biocides but should protect the outside of the timber for up to 30 years.

The alternative to using preservative treated timber is to use the scarcer and therefore more expensive and naturally durable timbers, such as Oak, Douglas-fir, and Cedar. These are used on more upmarket sheds and locally for elements that are more exposed to weathering. Oak is often used for timber framing; Douglas-fir is often sawn into boards and used with waney edge for cladding, while Cedar is split and used for roof shingles.

The majority of sheds in the UK are built from softwood of which approximately 80% is imported (Timber Trends Utilisation Statistics 2013). Imports are typically from the major timber exporting countries of Canada, Finland, and Sweden, which involves a fair amount of transportation to bring the raw material from the forest to its place of use. To reduce these 'timber miles' more locally grown timber needs to be produced within the UK to help reduce carbon emissions. It is interesting to note that the share of UK produced timber in the UK sawn softwood market has grown from 22% in 2002 to around 40% in 2013.

In relation to the use of domestic timber used in sheds, the use of Douglas-fir, Oak, and Sweet Chestnut could be species that would help in this area. The majority of Cedar used in the UK is imported from North America. However, before we switch over completely to timber sheds, it should be noted that metal sheds have a place in the shed ecosystem.

Metal

Metal sheds are generally used for storage when something utilitarian is required that has a higher level of security for storing valuable garden equipment outside of the home. The most commonly used metal is steel and despite the high energy use required, the majority of steel used in the UK is from recycled sources and at the end of a metal shed's life it can be fed back into that same recycling stream.

However, when specifying metal sheds, it is most definitely caveat emptor (buyer beware!). Steel sheds are most often used as storage sheds and the market seems polarised between the very cheap and flimsy and the more expensive, robust sheds.

Cheap metal sheds

Cheap metal sheds have achieved their place in the market due to their very low price points. These sheds are made of very thin sheets of steel (often less than 0.35mm) and when compared to other shed types appear to be the cheapest on a price per square metre basis. However the difficulties start when the shed is delivered.

I often get reports from readers of the site about the difficulties of assembling the panels and frames of some metal sheds due to a low standard of manufacturing tolerance. There are often difficulties with securing the doors due to the thinness of metal and the quality of the fixtures and fittings. Finally, problems are also reported with overloading the roof with snow in winter if a special roof strengthening kit was not included in the initial build.

On the face of it, these cheap sheds look to be kind to the environment by using small amounts of material. Nonetheless, they can end up being a disaster as they end up having a short life or are deemed as unfit for purpose. The solution seems to be to engineer a shed that on the face of it is heavier and more expensive than is needed.

Quality metal sheds

The more expensive and better designed metal sheds have a definite useful place in society! The sheds are secure, low maintenance, and due to their form of construction can be dismantled and moved as needs require.

So what are the features of a quality metal shed? A short list includes an emphasis on the thickness of steel panels (1.2mm is typical), accurate joints between panels, galvanised panels, and a quality paint system. One particular point about metal sheds is the security of the doors.

A final advantage of steel over a basic timber shed is that of security. Side panels are bolted rather than nailed so are more resistant than timber to a sustained attack on the panel fabric. Also doors are often fitted with a 3 or 5 point locking system which are more secure than the standard hasp and staple that comes with a typical timber storage shed.

A consistent problem with metal sheds is condensation. This occurs when warm wet air meets a cold surface and is a particular problem on the underside of the roof. To combat this problem well- designed metal sheds have a pitched roof and ventilation at the eaves to avoid the moisture affecting the shed contents.

Metal sheds, then, definitely have their place in the shed 'ecosystem'. They may have a higher carbon footprint than an equivalent timber shed, but when it comes to low maintenance and security, they have a real edge.

The last of the commonly used shed materials is plastic, but can they really be considered eco-friendly?

Plastic sheds

Surely plastic sheds are not in the least environmentally friendly? I agree entirely with this. The material uses precious hydrocarbons and once the shed reaches the end of its life it is not at all re-usable in any form. In spite of this, there is a valuable point that can be learned from a particular shed that is regularly discussed on my website.

The Winchester shed made by Royal Sheds of Canada was last made in the 1990s. Production was ceased when the company that made them was merged with another corporate entity. Despite manufacturing having ceased over 20 years ago, owners of this shed still rave about its practicality and durability. Owners regularly search for replacement parts for this shed that are no longer made; the only way to achieve this is through cannibalising/recycling other models that have passed their 'use by' date. This short story goes to show that good design, even with the 'wrong' material can achieve a good experience for the user.

Summary of Shed Building Materials

To provide a shed that maximises its environmental potential, careful selection of foundation design and construction materials helps to minimise the impact of the project on the environment, whilst also considering the use that the shed is to be put to. Having focused on shed construction materials, let's consider some of the methods that can be used to maximise the useful life of your shed.

2. HOW TO EXTEND THE LIFE OF YOUR TIMBER SHED

Rats in the wild have a life expectancy of about a year but when cared for as domestic pets (and I am told that they make good pets!) they can live for up to three times as long. The difference being the ready access to food, water, shelter, and medical care provided for the domestic rat by its loving owner. Similar extensions of life can be had for the common shed by paying attention to good construction details and preventive maintenance.

So what is the best way to make a shed last longer?

The most common problems that result in the early demise of a garden shed are related to water. Some key routes that water gets into the fabric of the shed are from leaks in the roof, by rain splashing on to the base of the shed, or by dampness coming up through the floor. My solution is to provide each shed with a good hat and pair of boots.

So how would a good hat and pair of boots solve these problems?

The hat of course relates to the roof of the shed and the boots to the foundations. The elements of a shed roof that contribute significantly towards the longevity are the roof covering, the roof pitch, and the overhang of the eaves.

Which is the best roof covering?

The best roof covering will depend on your locality and environmental conditions. But generally, to determine the most cost effective solution is to get an approximate annual cost per m^2 for the roof covering. For example the cheapest roofing felt on the market costs £2/m^2 and will last for 5 years giving a cost of 40p/m^2 per year. An alternative would be felt shingles which at a cost of £5/m^2 looks to be much more expensive, although with an expected life of 20 years give a much lower material cost of 25p/m^2. This pricing just relates to materials and ignores the time and labour required to re-cover the roof.

The pitch of the roof will influence the roof covering that you use

The steeper the roof's pitch the faster the rain will run off, so steeper pitched roofs are used in areas with higher rainfall. At pitches below 19 degrees, overlapping roof coverings such as felt roof tiles will not be effective due to capillary action and wind driven rain. A nominally flat roof with a pitch of 6 degrees may be effective initially, but without a significant slope, the roof needs to be checked for a build-up of debris which can cause ponding and roof leakage if left unattended to. Careful selection of roofing material and slope will help to keep the water from leaking in from above. An additional couple of details at the eaves will contribute to the roof being an effective hat.

A good hat has a brim to stop the drips of water going down your neck

The eaves of a shed are like the brim of a hat. By considering the eaves detail you can reduce water damage to the base of your shed. As water falls from the roof of a shed, it splashes on the ground and makes the walls of the shed damp. This repeated wetting and drying leads to deterioration of the shed walls over the life of the shed. There are two methods to reduce this effect.

The first method is to fix a rainwater gutter to the eaves of the shed. The gutter collects the water and either directs it into a water butt or into a nearby flower bed. Another method is to make the eaves over hang sufficiently large that splashes of water do not reach the sheds walls. The recommended distance for a single storey building is 150 mm. The added benefit of having larger eaves to the shed is that they will provide shading to the walls in the summer which helps to lower internal temperatures. By controlling the water coming off the roof of the shed you reduce the water getting on to the boots of the shed.

The boots of your shed are the floor and foundation

A good set of boots will keep your feet dry. Details to keep the base of your shed dry include using some shingle around the base of the shed to prevent splash back of water on to the walls. Water splashes about 50% less from an irregular surface such as shingle than from a hard flat paving slab. The shingle can be part of a drainage system that leads water away from the base of the shed and therefore keeping the base timber dry.

Another line of defense for your shed boots is to incorporate a damp proof membrane beneath the shed floor and any foundation system that you use. Once again this keeps the main enemy of your timber shed at bay by keeping the water out.

Water is the main enemy of any timber structure

Whether you are building your own shed or buying one readymade, consider the effectiveness of the hat and boots that you provide your new shed with to ensure that it has a long and maintenance-free life.

Now that we have considered the structural fabric of the shed, how can we ensure that the design uses a sensible amount of energy to sustain its proposed use?

3. HOW TO REDUCE THE POWER CONSUMPTION OF YOUR SHED

The fuel efficiency of a car is fairly easily measured as miles per gallon. To reduce this value there have been many years of research and development to get small improvements from the many different systems that interact to keep a car running.

Luckily keeping power consumption to your shed down is a lot easier

The main items that consume power in a shed (that is used as a home office) are light and heating. Many sheds do not require a power supply as they are only used for garden storage. However, even for a storage shed, it is helpful to see what is inside. Windows are often not used on storage sheds to keep the contents away from prying eyes and also it is easier to secure a shed without large window openings in the walls. Using a skylight in the roof of the shed is one way of introducing light into a storage shed without using windows. Another method is to use slot windows at eaves level, being above the line of sight this allows light in to the shed without the contents being on display to the casual observer. If the shed is to be used as an office, workshop, or for leisure purposes the demand for light increases so larger windows will need to be installed.

The simplest method of reducing power consumption for lighting is the use of skylights. To provide effective lighting to the interior of a small building an area of 10 -20% of the floor area should be given over to translucent material. Positioning of the skylights is also important with the skylights located on a roof slope facing away from the main sun elevation (i.e. on a north sloping roof in the Northern hemisphere) to prevent heating from solar gain. The pitch of the roof is also important to ensure the roof light is weather tight. A typical commercially available roof light requires a minimum roof pitch of 15 degrees. A final point to consider is heat loss through the roof light and that the thermal properties of the roof light that you are going to install are equal to those of the rest of the shed.

Making the most of natural daylight is an important strategy.

But what happens when natural light is not available?

If you need to work in a shed or have access at times when daylight is not available, then installing solar panels may be an option. The price and availability of small solar panel installations has improved dramatically since I started my website in 2008. A small solar array can be sized for low power LED lights and also to provide charging for low power consumption office equipment such as lap tops and desk fans.

However, if the anticipated power requirement includes power tools for a workshop or the space requires heating in winter, then a connection to the mains may be required. This may be quite an expensive option as running a power cable to the shed may cost several times the amount of power that a small shed will consume in a year.

The main requirement for running power to a shed will be heating

There are two factors to consider when reviewing the heating requirements for your shed. The first will be the amount of heat that you require. Heat and power input is governed by the volume of the shed, amount of insulation, and duration of seasonal extremes of temperatures in the local environment.

The main improvements that can be made to the shed to reduce the heat required is to improve the air tightness of the shed by ensuring that the joints and doors all seal well. Secondly, the other method is to reduce the rate of heat loss by improving the insulation of the construction forming the shed walls, floor, and roof.

What are the main forms of insulation?

Many sheds for offices are constructed using mineral and petrochemical based insulants such as rockwool, fibreglass, and polyurethane-based systems. These products are also used for retrofitting insulation when owners wish to convert a shed from a storage purpose to a garden office. All of these solutions are based on the use of finite resources.

Other options for renewable forms of insulation are hemp and sheep's wool insulation. Straw bale construction might also be considered, although for many domestic garden sheds the wall thickness arising from this type of construction, typically 450mm, is too thick and space hungry to be accommodated in the average size domestic garden.

We now have selected the materials our shed is to be built from, considered details to ensure the building is durable, and minimised its energy use. All that remains is to ensure that the structure that we build will have a beneficial effect on the local environment.

4. IMPACT ON LOCAL ENVIRONMENT

A limit on the size of sheds imposed by UK planning regulations is that they should cover no more than 50% of the garden area. When the pathway and paving to the shed is included, the loss of permeable and growing area to the garden may be even greater.

How can the loss of drainage and habitat due to shed construction be mitigated?

There are several solutions to alleviate the effects of construction of a shed in a garden. Solutions include, the use of green roofs, green walls, and the use of water butts to collect rain run-off.

Construction of green roofs

Green roofs are required on many larger projects to mitigate the environmental impact of the project from the increased surface water run-off. On small projects such as sheds, the construction of green roofs is never required as part of a planning condition.

So why do people install green roofs on their shed?

To the householder, the benefit of a green roof is the replacement of growing and wildlife habitat area at ground level with one at roof level. Dependant on the type of green roof required a huge variety of plants can be grown. For very thin substrate/growing material, succulents such as sedum work well. For slightly thicker substrates, the range of plants becomes wider, with drought resistant herbs becoming suitable. The thicker the soil, the greater the range of plants that can be used: some people even use the shed roof as a nursery for small vegetable plants before planting them out in the main beds. Having a green roof can add another habitat to the garden, which aids biodiversity as well as encouraging a wider range of pollinating insects and birdlife. The benefits of a green roof aren't just limited to the outside of the shed.

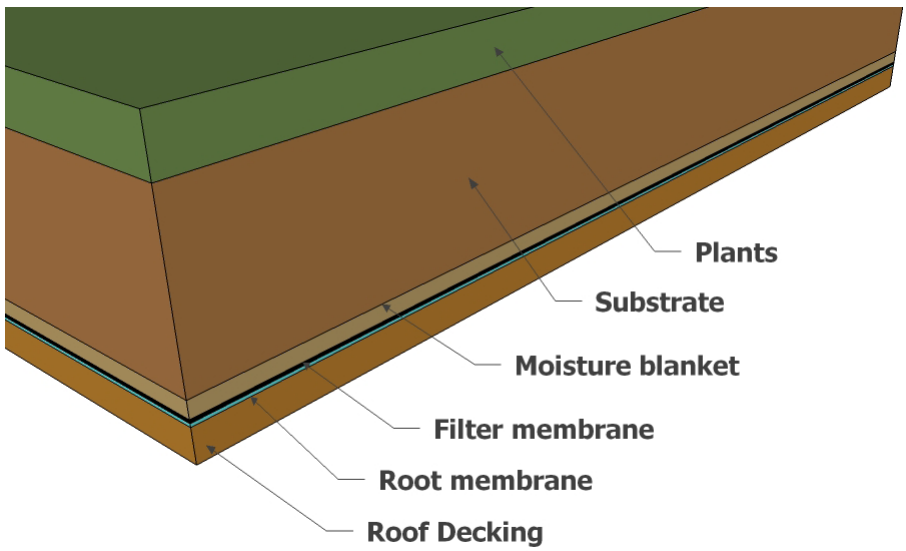
Benefits of a green roof extend inside the shed too

The benefits to the internal environment of the shed by having a green roof have not been firmly established. In the winter months the soil on the roof does not give a great benefit to the internal environment of the shed as the thermal capacity of 50-150mm of soil is not great in comparison to other insulation materials.

By contrast, in the summer months, as the soil is damp and the plants retain moisture, the green roof helps to attenuate heat gain. The heat transfer is reduced due to the latent heat of evaporation of water in the soil and the transpiration of water through the plants. So with all of these benefits why aren't more green roofs built?

Barriers to the spread of green roofs

The main barrier to installing green roofs on sheds is the perception that they are very heavy and pose a risk to the shed in terms of waterproofing. To modify an existing shed to accommodate a green roof requires installing additional roof timbers and bracing. The amount of additional timber is not large but fitting in and around the existing structure can be problematical. However, as is often the case, building a shed structure to accommodate a green roof from scratch is not significantly more expensive in terms of material. Certain timbers will be larger and fixings made more securely but not a huge amount.



The other barrier is the idea that with all that damp soil on the roof water will find its way into the shed. The principal method of keeping the water out is to use a single ply membrane roof. This type of roof generally has a minimum lifespan of 40 years and when protected by a layer of material as in a green roof it can be well in excess of this. It used to be that such material was only available in large quantities for major projects, this has now changed due to the growth in the market and smaller quantities are now available for purchase.

A more recent innovation is the green wall

Green walls use the vertical space on the side of a shed to grow a variety of plants. The wall is formed from a series of pockets containing a growing medium. The pockets are kept damp through a network of pipes with water fed through a pump and timer. The pockets on the wall can be varied with the season and include herbs such as basil, sage, thyme and mint, a mixture of flowering plants such as Euonymus, Geraniums and Festuca, or fruiting plants such as strawberries.

The green wall is more technically complex than the green roof; it has moving parts in the form of a pump and requires a water supply. An added benefit is that a significant amount

of garden space can be achieved through the use of this vertical space that wasn't there previously. Using water run off to keep the green walls watered is not the only use.

Utilising roof run-off

Whether you have a green roof or not, the roof of your shed will give rise to rainwater run-off flowing into the surface water drainage system which would have previously soaked into the ground. The increased area from a single shed does not add a huge burden to the local drainage network, but once again, when multiplied by the number of sheds in a town, this area starts to become significant. Recent planning initiatives encourage the use of SUDS (Sustainable Urban Drainage Systems), which encourages landscaping that retains rainfall where it lands and retains it so that it imposes less of a burden further down the system.

Roof water is collected by a gutter installed at the low edge of the roof and can be stored in water butts. If the water storage required is more than a single barrel, multiple barrels can be linked together to achieve the amount of storage required. Overflow from the storage system can be directed to a nearby flower bed to percolate into the soil.

The benefits of using water storage in this way are that it reduces domestic water consumption and bills; also rainwater is 'softer' than mains water and does not contain chlorine or other chemicals. In addition, although the amount of water stored might seem small, when multiplied across a large number of sheds, the volume of water that is prevented from entering the drainage system is significant.

Summary of improving local environmental impact

Providing green roofs, green walls, and storing rainwater for use in the garden minimise the change on the landscape at the time of building a shed. These strategies can even be added as a retrofit option after a shed has been completed.

CONCLUSION

I hope the continual mention of rats hasn't put you off the central theme of this article. My point is that rats are small creatures that on their own have a very small impact on the world. But in large numbers they are credited with significant impact. Recently, there was a significant effort to eliminate rats from the island of South Georgia due to the negative impact that they were having on the wildlife there.

Similarly, sheds are small structures that seem insignificant by themselves but in large numbers have a huge impact. The social impact of sheds is undoubtedly positive with all of the benefits that they provide such as:

1. The prevention of construction of additional extensions to permanent structures.
2. Provision of shelter and storage for all sorts of work and hobby activities in the outdoors.
3. Allowing increasing numbers of people to work from home.

The challenge is to ensure that the construction of sheds is as environmentally friendly as possible. This can be achieved through the use of the following:

1. Ensuring environmental impact is minimised by selecting the shed foundation and superstructure that is appropriate to the local climatic conditions and use.
2. Detailing a shed and incorporating planned maintenance can extend the life of a shed considerably.
3. Many sheds do not require power if they are designed or selected thoughtfully. However, intelligent use of natural light, solar power, and insulation contribute to minimising power consumption.
4. The land impact of individual sheds is marginal but when all of the small areas are added together, it is significant. Taking steps to replace lost habitat and reduce surface run off make for a more enjoyable garden and minimise environmental impact.

If you would like to add your voice to the discussion of improving the environmental impact of domestic shed structures, please contact me: john@secrets-of-shed-building.com