

CHAPTER 1 APPLYING PERMACULTURE PRINCIPLES IN SMALL SPACES

People usually imagine that a typical permaculture garden is spread over a large site that includes tall trees for timber, a fruit tree orchard, vegetable crops, compost heaps, and other productive elements. However, the sprawling permaculture garden is just one way of designing a productive and sustainable outdoor space. Permaculture principles and techniques can also be applied to small spaces.



Permaculture should be a sensibly organised, regenerative and productive space; all of which can be achieved in even a very small garden space.

Introduction

Permaculture is a holistic approach to managing land. Since its inception in the 1970s, permaculture has borrowed growing techniques from the past and developed other techniques. There are lots of different practices that are frequently used to create a permaculture system. Many of those practices can easily be applied in small gardens.

As urban architecture around the world shifts towards taller buildings and smaller blocks of land, there is an increasing desire to create a permaculture garden in small spaces. Fortunately, the theory and practice of permaculture lend themselves well to such propositions.

Even the smallest of spaces, like a balcony or paved courtyard, can

become host to a permaculture system with some careful thought. Once established, it will be largely self-sustaining and productive, requiring minimal labour to keep it going.

Permaculture works with the forces of nature to create an outdoor environment that is:

- Productive – people can extract useable things such as food.
- Regenerative – it develops a balanced ecology which persists with minimal interference.
- Sensibly organised – site components are arranged for convenience and functionality.

When the design of any outside space satisfies these three criteria, it may be developing the characteristics of a permaculture system.

Ethical underpinning

Permaculture is more than just growing food crops using natural systems. It is also based on strong ethical guidelines that underpin how we live and interact with the world. These ethical guidelines underpinning permaculture are:

Caring for the earth – all living things – every plant and every creature - has a role to play in the different webs of life. Looking after all living things also involves caring for the earth and protecting its future wellbeing. Even a small tray of soil with a few lettuce seedlings contains many forms of life – different bacteria, fungi, and other microorganisms.

Caring for people – As people focus on building self-reliance and personal responsibility they become better able to work with others. Working with other people helps to build relationships, share knowledge, and care for our communities and humankind more broadly.



Permaculture cares for the environment and all living things. This simple stack of logs and bricks creates crevices and hollows, that provides homes for all sorts of animals. It uses minimal ground surface while vastly increasing the number of bees, butterflies, pest predators and other beneficial animals in a small space. A structure like this can greatly add to biodiversity in even the smallest permaculture garden.

Sharing fairly – permaculture systems often produce a surplus of crops. To avoid wastage in terms of energy and produce, surpluses must be shared. We should try to only produce what is needed. By doing this, we are caring for the earth and caring for people.

These ethical guidelines highlight the cyclical nature of systems and sustainability. They are also used to inform the principles of permaculture design.



Design with relative location in mind. The olive tree is located at the rear of this small garden because it is only harvested and perhaps pruned once a year. Cut flowers and edible plants which might be harvested frequently are located closer to the house.

Permaculture principles

There were originally nine key principles of permaculture. Over the years they have evolved so that some authors espouse considerably more ideas, while other advocates simplify the ideas to focus on fewer principles. Permaculture principles can be generally summarised as:

1. Relative location – In a permaculture design, all things are connected. By placing individual components in a design in the right position it encourages a desirable relationship between them. This creates systems with closed loops that are more efficient and less labour intensive. When setting out a permaculture site, it's important to observe the site thoroughly to determine what systems exist and how to make the best use of them. Permaculture design works with nature rather than against it.

Rather than thinking of individual elements like a plant, soil, or water, think about how these elements relate to each other. For example, if there is only room for a handful of potted plants, these could be positioned to receive the most sunlight and rainfall. For shade-loving plants these can be positioned where they receive more shade e.g., from the overhanging branches of a neighbour's tree. The same pots in the wrong place create more work.

2. Multiple functions – an overall design will have numerous functions, such as shelter, food, medicine, energy, etc. Each function in a design should be considered individually in support of the whole. Each element has multiple uses. For example, a small courtyard tree might provide shelter, food, leaf mould, food for insects

or birds, perching and nesting sites, etc. Herbs in a window box might provide flowers for pollinating insects, fresh leaves for cooking, and dried seeds or bark for spices or medicines.

3. Multiple elements – each function is supported by many elements. Biological diversity is a key principle of permaculture. Diversity links many of the other principles. It creates systems

that are more stable and less prone to collapse if one element is removed. It also ensures greater and varying yields.

Even a group of potted plants or a group of plants in a window box can form stable systems. You can mix a range of different elements like low spreading herbs, mid-sized plants, and taller growing fruits or vines so that if a plant dies or is harvested, another can take its place.



Multiple elements are a function of any good permaculture landscape. Despite being small, this site has gravel surfaces, mulched surfaces, vertical surfaces, water surface, and diverse plantings some in pots, some in beds at ground level and some in raised beds.

4. Elevation planning – the arrangement of plants in a system affects the environment, including the temperature, frosts, winds, soil fertility and energy. Permaculture design is three dimensional; it considers the width, length, and the height of the elements within the system.

Imagine designing a narrow space at the side of a house. There isn't a lot of room to grow plants in the ground. This limitation could be overcome by growing some fruiting vines on trellis attached to the side of the house. Hanging baskets and window boxes could also be installed with plants that benefit from the shade or warmth provided by the vines.

5. Use renewable resources – permaculture uses renewable energy sources that are produced and reproduced within the system. Typically, these are things derived from organisms. These use energy from the sun, directly or indirectly, to reproduce.

In a large permaculture space, it is possible to reach a point where everything is produced on-site. In smaller spaces, products made from renewable resources can be brought in – preferably those produced locally. For example, if there's no room or not enough material to make compost, it could be brought in. If there's space for a garden bench, choose a wooden one rather than a metal bench.

Although products made from non-renewable resources are not encouraged, they might occasionally be used. If so – recycled or repurposed materials should be chosen where possible e.g., second hand pots, using an old kitchen sink as a planter.



Using recycled roofing materials, and collecting rainwater to water plants both fit well with permaculture principles for increased sustainability.

6. Energy recycling – external energy use is minimised through the collection, storage, and reuse of waste energy created within the system by animals, plants, power, and materials. The idea is to use energy sources effectively and efficiently. There are many ways to recycle energy sources. Plants on a balcony could be watered using greywater from wash basins, showers, and washing machines. Rainwater can be collected in tanks, or even empty buckets. A windmill fan could be set up on an enclosed balcony or veranda to