



CULTIVATE  
HORTICULTURAL SOCIETY OF NSW  
FACT SHEET 3  
VERTICAL GARDENING

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1. **What is vertical gardening?**

Vertical gardening simply means exploiting the potential of the vertical plane to grow plants, (something trees do naturally) instead of just the horizontal plane, which is the traditionally the ground of the garden. Think of the mythical Hanging Gardens of Babylon, verdant & graced with luscious vines, cascading foliage and espaliered fruit trees.

In practice, vertical gardening involves using fences, walls, pergolas, arches & trellises to support climbing & hanging plants.

Not only are vertical garden elements attractive, they bring plants parts within easy reach. Vertical structures (stakes, trellises) can be easily inserted into ground level & raised garden beds, as well as planter boxes, containers & window boxes. Hanging baskets can be suspended at desirable heights from pergolas and house eaves. A pulley system can be devised to raise & lower baskets as needed.

The plants for vertical greening of your garden can be natural climbers (e.g. Pandorea), or those amenable to be trained to a trellis (e.g. Sweet Peas), or stakes (e.g. Tomatoes). Some plants are suitable for being espaliered against a wall or trellis (e.g. Camellias, Fruit trees). Plants with a trailing growth habit (e.g. Convolvulus) can be planted along the edges of raised beds or planter boxes and allowed to cascade to the ground giving a wall of living colour.

While a main advantage of vertical gardens is that plants (their fruit, flowers, scent and foliage) are brought within reach, they have many other benefits. Vertical garden elements can:

- disguise & screen unpleasant structures or views
- define garden areas
- soften stark surfaces
- provide shade

- allow vertical circulation of air, ideal for plant growth for example by reducing fungal diseases
- all the while taking up little horizontal space, important when space is a premium.

## 2. Factors to consider with vertical garden structures

- What is the final desired height of climbing and hanging plants, in terms of their reach-ability?
- What type of vertical structure is most suitable for a particular plant?
- How sturdy & how high does the vertical structure have to be? For example, the Wisteria climber requires a very strong vertical support system, while Akebia quinata is a light climber which needs only a light-weight arch for support.
- In what garden structure will the plant be growing? e.g. will a tee-pee for tomatoes be best located ground level garden, a raised bed, a planter box, or a container?
- Are the soil characteristics suitable?
- Will you be gardening from seated or standing position, & how high can you comfortably reach?
- Consider also the sun/shade requirements of the plants & the gardeners.

## 3. Further examples of vertical garden structures

### **Pergola:**

This is an overhead structure, supported by posts, often constructed from timber or metal. A table & seats placed under the pergola, shaded by the pergola's climbers, can be an idyllic spot in the garden. Climbers can grow up (from plants rooted at ground level or in planter boxes or containers) the pergola. Also, small plant containers & baskets can be hung from the rafters of the pergola.

### **Tepee:**

A tepee is formed by three or more long narrow poles (bamboo, metal, plastic, timber stakes) are tied together about  $\frac{1}{4}$  the way from the top with string, tape or wire. The poles are then splayed apart, and the self-supporting structure inserted into a ground level bed, a raised bed, a planter or a container.

**Trellis:**

A trellis is a latticework, frame or structure, often made from timber or metal, to support climbing plants. A trellis can be part of a fence, an arch or be incorporated in a raised bed or container.

**A-frames:**

A-frames are essentially two trellises joined at the top, but splayed at the bottom, in cross-section resembling the letter 'A'. These are often used for growing melons, beans & tomatoes.

**Towers:**

Towers are pyramidal structures consisting of a tall central vertical pole surrounded by an array of tall vertical elements (e.g. metal or timber) up which climbers can grow. Single short timber supports or stakes can be used for tomatoes to grow up.

**Arches:**

Arches made from trellis work or twisted wire can support climbing plants.

**Espalier:**

Espalier is trelliswork of various forms and materials on which the branches of fruit or ornamental trees are extended horizontally in a single plane, for example, in a fan shape.

**Vertical wall gardens:**

Vertical wall gardens, sometimes called vertical planters, are an array of 'containers' that hold their unexposed soil surface perpendicular to the ground. The containers are usually square or rectangular in shape and about 300mm deep. The containers are covered in plastic, then wire mesh, & then finally stacked or inserted into a vertical timber frame. The final structure resembles a bookcase, filled with wire-fronted boxes, the height of which can be customised. Plant material is inserted into each container by first punching a hole through the plastic & wire, then positioning the root system. The plants thus grow sideways. Vertical planters can be freestanding (both vertical faces open to the air) in which case they must be anchored to a floor, or bolted to a wall, with only one vertical face open.

Vertical wall gardens are quite complex to construct. The soil needs to be changed around once a year, and a drip watering system needs to be designed for the structure. However, soil moisture is retained longer than in other containers because the soil surface is not exposed to the air.

## **Hanging baskets:**

Overhead structures such as pergolas or house eaves, allow you to hang baskets & other containers. Hanging baskets dry out quickly, so ensure that they are at a height permitting frequent watering.

Ropes & pulleys can be used to lower hanging baskets for tending and then raise them again out of harm's way. With double or triple pulleys you can make a small block & tackle system, to reduce the strength necessary to raise & lower the basket.

To minimize accidents, tie a safety knot to become wedged in the pulley, should control be lost. Drought tolerant plants are ideal for hanging baskets. Plants that have a trailing habit, such as ivy geraniums, can look spectacular descending from hanging baskets.

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