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# Vertical gardening: For present age environmental protection

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## Abstract

The term “vertical gardening” is self-explanatory. Vertical gardens, also known as green walls are contemporary forms of gardening. The increase in the urban living and lifestyle has raised the number of apartments in India. This has led to the encroachment of spaces all over the city. For a person who is a nature lover, it is very difficult to have their own garden especially when they are residing in an apartment. Perhaps, they need not lose hope as a vertical garden can let you indulge in gardening and your love towards gardening. You can attain this by cultivating a vertical garden in your apartment balconies or any other appropriate place. This will help create green walls in limited space of your apartment. A vertical garden will give your home a chic look by acting as an elegant home décor as well as it freshens up the air. They can be classically minimal or overgrown based on your preference. Vertical gardens can be mounted on walls using different suitable mediums like bags, pouches, water bottles, plastic containers, fabrics and so on. These gardens can be used to block unpleasant sights or penetrating sunlight in your apartment. With the popularity and versatility of vertical gardening systems, there are now several designs of green-walls on the market for both aesthetic and productive gardens. It's important to have an understanding of the strengths of each system so you can create the effect you are after, not only for the weeks after installation but in the years to come. A vertical garden performs environmental magic while hiding ugly walls or providing the whole family with an abundance of fresh food but they need to be easy to install and even easier to maintain. They add height to horizontal gardens, making them more visually thought provoking.

**Keywords:** Vertical gardening, Environment, Protection

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## INTRODUCTION

Before you begin to develop your vertical garden, observe how the sunlight moves through the space. Vines that grow on trellises, arbors, or pergolas will need at least 6–8 hours of direct sunlight per day. In general, east, west and south facing walls will be the best for growing vegetables, herbs, and flowers in the Northern Hemisphere, but hanging gardens can grow well with different orientations as long as you make sure that you choose a more shade-tolerant type of planting for north-facing walls. Consider other activities that may impact the garden, such as sports or other play, as well as the configuration of the space. For example, narrow corridors with heavy traffic may not work for a hanging wall or fence garden. Location should about the average height, able to reach the garden without a ladder, without much technical knowledge build it be possible.

## MATERIALS

Materials should contain light weight (0.75g/sm), planted weight aprox. (2.4g/sm), made from in destructible recycled nylon felt, easy to mount wall gardening solution, versatile move and change plants as comfort. Trellises can be built out of many different

materials such as wood, bamboo, iron, and reinforcement steel. They can be purchased or made by hand. Hanging wall gardens can also be purchased or built by hand. If you want to build a wall garden, consider making hanging containers out of wood, recycled plastic, repurposed lightweight containers such as watering cans, or breathable felt cloth like the material used to make “Woolly Pockets.” Whatever you use, make sure the containers are securely fastened to the wall or fence.

## Selecting Soil

For trellised gardens, it is easiest to use an organic soil mix from a nursery, local topsoil straight out of the ground, or a combination of the two. Regardless of the source, apply a fertilizer, such as organic compost or decomposed animal manure, that is appropriate for the types of plants you will grow. For most hanging wall gardens, you'll need to use a growing medium such as soil. Choosing which type to use will depend on the type of garden you are building. A hanging container or pocket garden should have organic soil mix, similar to that in raised beds or container gardens. A hydroponic hanging wall does not need soil. It does, however, need a system for adding nutrients to the water and cycling water from the bottom of the wall garden to the top after it percolates down. It needs a water reservoir, pump, and a nearby power source to plug in the pump. Unless you have carpentry skills, purchasing this equipment is advisable. Many hanging hydroponic garden kits have solar panels connected to them so that when the sun shines, the solar energy pumps water from the reservoir back up to the top of the garden.

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## Choosing Plants

Climbing plants such as runner beans, peas, gourds, chayote, passion fruit, kiwi, grapes, and flowering vines are best for trellis gardens. Smaller plants such as herbs, lettuces, and leafy greens grow well in hanging wall gardens, whether in a container with soil or grown hydroponically.

## Irrigation

All types of gardens windowsill, vertical, in containers, or in the ground will require proper irrigation. A good idea to develop a way to irrigate your garden before you plant anything. Hand-watering with a hose and later install a drip irrigation system. More mature plants with deeper roots and perennials of all kinds need less frequent, deeper irrigation depending on the season and climate. Some plants require soil that is always moist, while others prefer that soil dry out before the next deep watering. Many plants vary in their needs for watering throughout their life cycles. For example, beans and peas are particularly susceptible if insufficiently watered when flowering, while root crops are susceptible when establishing their root systems. Sprinklers can also be useful as they can reach a large area using minimal water. Unfortunately, much of the water is often lost to evaporation. Sprinklers are ideal for larger perennial beds that don't need frequent watering.

## Maintaining a Vertical Garden

Maintaining a vertical garden is similar to maintaining any garden. Maintaining hydroponic vertical gardens is different, however. They must be checked regularly and the water level in the reservoir must be closely monitored, since water is lost to the plants and evaporation. Since they use an electrical power pump, remember to clean it on a regular basis and to replenish the nutrients in the water regularly. Plants often grow very quickly in hydroponic agricultural systems, so frequent harvesting and replanting is also necessary.

## Advantages

Small space gives big results, because it takes up very little space and can be quite productive. Great for climbing plants climb naturally, like runner beans, peas, gourds, chayote, passion fruit, kiwi, grapes, and flowering vines, they are ideal for growing plants that visually stimulating. They add height to horizontal gardens, making them more visually thought provoking. Covers unsightly walls, and fences hanging wall gardens can beautify unattractive walls and fences. They can create intimate space in larger gardens and provide shade on hot, sunny days.

## Disadvantages

Generally vertical gardens are often difficult for children to access. They are not ideal for working with large groups of students because of limitation in space. Limited growing options for typical type of plants do well in vertical gardens. For example, plants that do not climb tend to struggle in a vertical garden, and large plants such as corn, squash, and tomatoes need wider spaces for their roots to spread. In case of teaching it can be an incomplete tool. If purchased as a kit or a custom-made design, it can be expensive.

## CONCLUSION

Horticultural understanding is critical, varies from region-to-region, more information is going to be necessary to ensure future success. Vertical gardening implies constant care, may breed a new type of gardener; highly skilled labour, cross-pollination of different ideas. Vertical gardening is still in its nascent stage, collaboration is critical and will facilitate propagation of new innovations for environmental protection issues.

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