

Indoor Hydroponic Gardening

Vertical gardens -- think living walls -- are of the hottest new garden trends and yet it's one of the oldest (have you ever grown a vine on a fence or trellis?). A vertical garden is a perfect solution for just about any garden -- indoors or out.

Vertical garden elements can draw attention to an area or disguise an unattractive view. In a vertical garden, use structures or columnar trees to create vertical gardening rooms or define hidden spaces ready for discovery. Trellises, attached to the ground or to large containers, allow you to grow vines, flowers, and vegetables in a vertical garden using much less space than traditional gardening requires.

Vertical gardening with upright structures can be a boon for apartment dwellers, small-space urban gardeners, and disabled gardeners as well as for gardeners with large, traditional spaces.

Indoors, you can grow small-stature houseplants as vertical gardens by creating living walls, for a tapestry of color and texture that helps to filter out indoor air pollutants. In cold-winter climates, houseplants grown in vertical gardens add much-needed humidity in months when the furnace runs and dries the air out. Increasingly, hotels and office buildings are incorporating living walls and vertical gardens both inside and outside.

Although vertical gardens might need more frequent watering, they contribute to good air circular.

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Vertical Gardens as Green Walls

Green or living walls, another form of vertical gardens are the latest fashion in vertical gardening. Some are simply walls covered with climbing plants, while others involve a modular system that allows plants to grow inside the structures.

French botanist Patrick Blanc is credited as the father of the green wall movement. He produced his first project on the exterior of the Museum of Science and Industry in Paris in 1988. Dozens of his other works are now installed worldwide, indoors and out. Blanc refers to his projects as living paintings or vegetal walls.

Creating a green wall or a vertical garden using Blanc's methods requires metal framing, a sheet of rigid plastic, and felt. The frame can be hung on a wall or it can stand alone. The rigid plastic, attached to the frame, makes the wall waterproof. The plants' roots grow in the felt, which evenly distributes water and fertilizer. Plant selection depends on the light and other growing conditions.

Some living wall or vertical garden systems include spaces for soilless potting medium so other types of plants can be grown, plus irrigation systems. Besides watering and fertilizing, green walls require other maintenance, including pruning, dusting, weeding, and, sometimes, plant replacement. Vertical walls or gardens are heavy, so check with a structural expert to make sure your wall can handle the load.

Vertical Gardening Considerations

Take these elements into account when gardening vertically outdoors:

Anchor your vertical garden structure in place before planting to allow you to avoid disturbing the roots or stems of plants. Pair heavy or more demanding plants with sturdier structures.

Tall plants or structures cast shadows on the vertical garden that will affect the growing patterns of nearby plants.

Plants grow differently on a vertical garden. Some, such as climbing roses, need to be physically attached to structures, while others, such as morning glories, are twining and will loop themselves around trellis openings.

Plants grown in a vertical garden might need more frequent watering and fertilizing because they're exposed to more light and wind.

Plants for Vertical Gardening

A wide variety of plants is used on green walls or vertical gardens, with plant selection determined by the light conditions.

For traditional vertical gardening, consider these selections:

Annual flowering vines that climb without becoming too heavy include black-eyed Susan vine (*Thunbergia alata*), cardinal climber (*Ipomoea x multifida*), cypress vine (*Ipomoea quamoclit*), moonflower (*Ipomoea alba*), scarlet runner bean (*Phaseolus coccineus*), and hyacinth bean (*Dolichos lablab*). All grow best in full sun.

Easily grown perennial vines for vertical gardens include clematis hybrids, American bittersweet (*Celastrus scandens*), and ivy (*Hedera* selections). All grow best in full sun; clematis prefer to have their flowers in sun and their roots in shade.

Vines for shade vertical gardens include hardy kiwi (*Actinidia kolomikta*), chocolate vine (*Akebia quinata*), Dutchman's pipe (*Aristolochia macrophylla*), and climbing hydrangea (*Hydrangea petiolaris*).

Edibles that adapt well to vertical gardening include fruiting vines such as kiwi (*Actinidia deliciosa*), Siberian gooseberries (*Actinidia arguta*), edible flowers such as vining nasturtiums, and vegetables such as peas, squash, tomatoes, and pole beans.

Columnar plants provide vertical gardening interest. Many can be grown without a supporting structure. Consider planting columnar apple trees, arborvitae (*Thuja occidentalis*), junipers (*Juniperus scopulorum*), or Lombardy poplars (*Populus nigra*).

Vertical Garden Structures

Fences, arbors, trellises, tuteurs, obelisks, and other types of structures make it easy to grow plants in vertical gardens. Hanging baskets can be considered elements of vertical gardening because they break the horizontal plane of gardening. Attach a drip irrigation system for easy watering, or add a rope-and-pulley system to allow easier access to hanging baskets for watering and tending your vertical garden.

If you have an existing structure such as a shed or garage, add a trellis in front of one of the walls so vertical garden plants have a structure to support their stems but don't cause any damage to the wall. Be sure to leave some space between the trellis and the wall for air circulation.