

green walls



Reaching new heights

Vertical gardens are providing us with a new and sustainable way of greening up our cities

Words: Sandra Batley



Imagine a lush tapestry of plants growing vertically up the side of tall city buildings and urban garden walls, or plants thriving on the interior walls of offices, restaurants and cafes. Well, you no longer have to imagine these vertical gardens as green wall technology is now making them a reality.

The term “green walls” refers to vegetation that grows directly onto a building’s facade or on a freestanding wall. Also commonly known as living walls or vertical gardens, green walls make it possible to create and display a natural-looking landscape vertically that is completely man-made. Green walls are still a relatively new concept here in New Zealand but are fast gaining popularity for the environmental and aesthetic benefits they provide.

Award-winning artist and French botanist Patrick Blanc pioneered the use of green walls in his home town of Paris. He went on to create The Vertical Garden, and today has many magnificent examples of his work on display around the world.

In a residential space, green walls provide the perfect solution for “greening up” areas where there is limited space, such as balconies, small courtyards or entrance ways. Tracey Peryman from Vertical Plantscapes believes green walls are a superb DIY option for residential homes and gardens. “It is a very user-friendly system which offers you the ability to create a living, growing picture,” says Tracey. It also gives you the opportunity to grow vegetable/salad crops for a vertical edible garden.

An example of this can be seen at the offices of Natural Habitats. The company has installed a green wall that covers eight square metres at the entrance of its Ellerslie office. It showcases a wide variety of New Zealand natives, including rushes, grasses, spreading plants and succulents, and creates a sustainable work of living art, with a real wow factor.

There are three main green wall systems that can have both external and internal applications.

Hydroponic Panel System: Comprised of usually pre-planted panels that are bought on site, the Hydroponic Panel System is connected to a customised rail and bracket system and then attached to the wall. It has a mechanical irrigation and fertiliser system, usually with a gutter drain at the bottom. It has been developed as a modular basket system used like cladding to create a ready-made green space. →

1. The face of this tunnel is transformed from a plain concrete slab to a living vertical landscape, creating a traffic-stopping effect as well as being good for the environment. Photo courtesy of Natural Habitats.



Helping the environment

There are many environmental benefits of green walls, including:

- Increased thermal insulation (lowering energy costs)
- Lowering greenhouse gas emissions
- Reduction of noise pollution
- Polishes grey and/or black water
- Can run on recycled or harvested water
- Cleaner air, especially removal of V.O.C. (volatile organic compounds)
- Healthier buildings and people
- Improvement of indoor air quality
- A shelter for biodiversity
- Greatly reduces the harsh nature of many built urban structures

There are also many residential benefits of green walls:

- Transform a plain concrete wall into a stunning visual piece of living art
- Liven up and add greenery to built-up areas of the garden
- Perfect for small outdoor areas that have limited space
- Create private outdoor areas using green walls as space dividers
- Create your own vertical edible garden on roof tops and apartment balconies

Soil-Based Panel System: This is also a modular system using 500x500mm panels made from rigid 80 per cent post-industrial polyethylene (the most environmental plastic) panel and is fully recyclable. It is simply attached to the wall by a recycled plastic mounting strip that spreads the weight across the panel, with two screws to secure it in place. Irrigation drip-lines are usually installed to control watering requirements.

Felt System: a hydroponic technique where plants are fitted as seeds, cuttings or already-grown plants into a layer of felt made of polyamide. The felt is rot-proof and its high capillarity allows good water distribution. This is then mounted on a 1cm-thick PVC layer as a waterproof membrane which is riveted to a light-weight metal framework. The felt is kept continually moist with water that is supplemented with nutrients. Watering and fertilising is also automated.



2. An external green wall installed at the Natural Habitats head office covers an area of eight square metres and is planted with New Zealand natives including rushes, grasses and succulents. Photo courtesy of Natural Habitats.

3. This 3m-wide x 2m-high green wall is a felt-based system, planted with an assortment of bromeliads, ferns and irises. Photo courtesy of Greenwall Australia.

4. A feature living wall is a focal point within this contemporary courtyard space. Fine-leaved plants are planted in carefully designed swathes for a soft, fresh effect. Photo courtesy of Vertical Plantscapes.

Walls can be built out of any of the above three systems and in addition to being set up outdoors, they can also be used to green up the inside of your house. Artificial lighting is required for green walls set up inside. Not only do indoor plants look good, they also cleanse and humidify the air, while improving the overall atmosphere of a home.

When considering a green wall, the orientation and climatic conditions of the area will determine the choice of plant species used as well as the overall visual effect you want to achieve. Both natives and exotic species can be used to create living pieces of art.

Once established, a regular maintenance program for your green wall is recommended. "Undoubtedly the best way to maintain a living wall is to have drip-line irrigation with periodic fertilisation incorporated," says Tracey. "Plant maintenance is as it would be in any other garden — checking for weeds, dieback, overgrowing etc. This last point can be addressed in the initial stages when planning the planting of the panels."

Long-lasting and stunning features can be created using green walls. Not only do these vertical gardens contribute to enhancing outdoor living spaces, they also help to create a more pleasant environment indoors. Green walls offer a new way to beautify the built urban environment, while adding a new dimension to our outdoor living areas. ■

