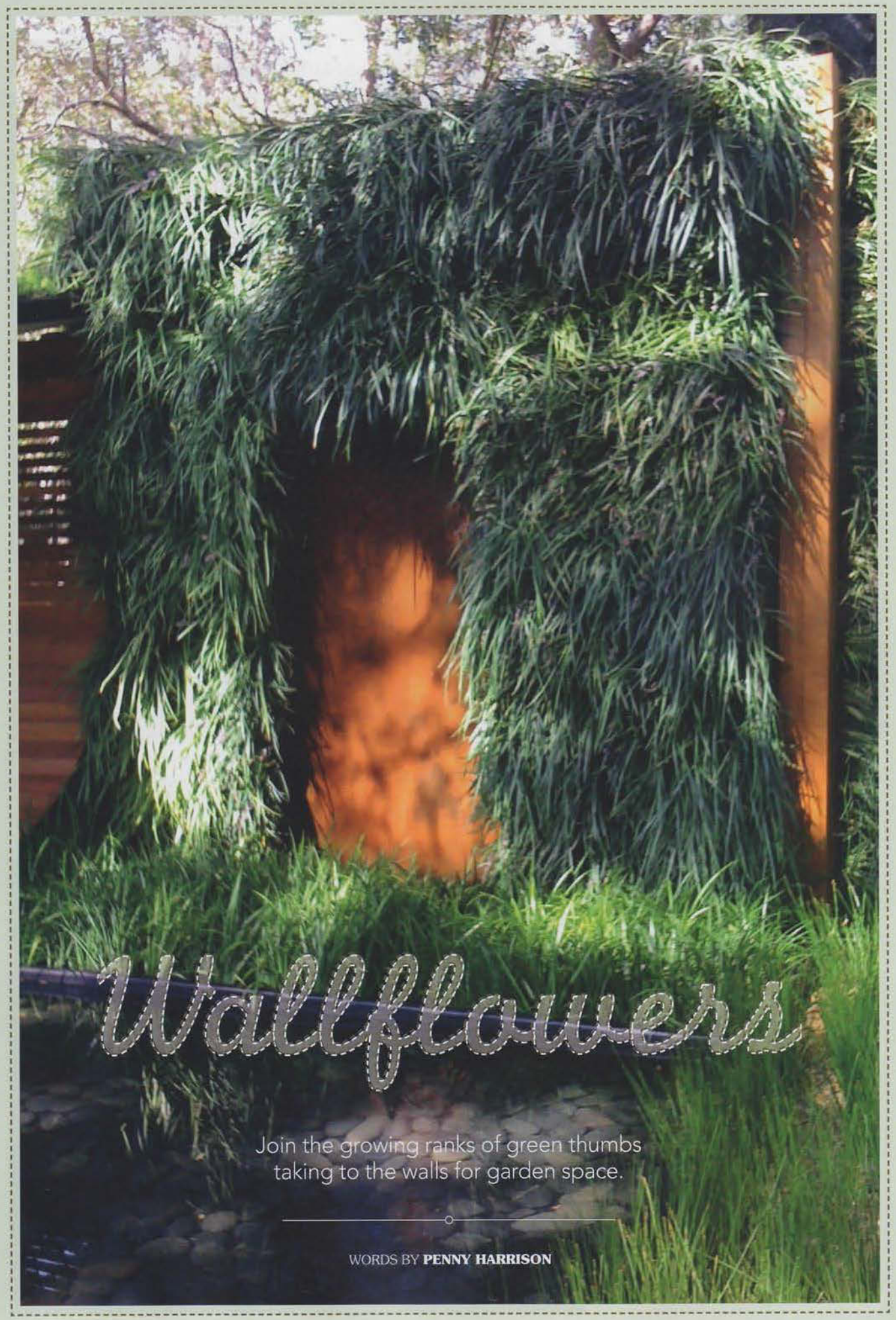

# Wallflowers

Join the growing ranks of green thumbs taking to the walls for garden space.

WORDS BY **PENNY HARRISON**

The days of the iconic Australian backyard are numbered. According to the Australian Bureau of Statistics, more than two thirds of our population today live in cities. For those in central-city apartment buildings, a garden might consist of an indoor pot plant, a window box or, if really lucky, a balcony the size of a bathtub. In the inner city, it's usually a paved courtyard. Even in the suburbs, townhouses are being squeezed onto quarter-acre blocks, offering residents an outdoor dining area that eats into any remaining garden space.

It's enough to drive you up the wall. And that's exactly where people are going in an effort to bring a little greenery back into their lives. Fresh from the glossy pages of designer magazines, vertical gardens are helping frustrated city dwellers put the jungle back into concrete jungle.

Green Roofs Australia president Sidonie Carpenter says domestic vertical gardens are reasonably easy to create and, with the right position, plants and know-how, can be sustainable. "It's a really exciting opportunity for people to push the limits and explore a new method of gardening," Carpenter says. "And, for smaller gardens with limited space, the social and health benefits are fantastic."

## ALL SYSTEMS GO

Today's vertical gardens range far beyond idle trails of ivy traipsing up a wall. There are countless ways to create one and many don't involve soil. "Look at tropical rainforests where some plants climb over soil-less rock," says Melbourne landscape designer James Dawson. An array of DIY kits have flooded the market, ranging from horticultural felt-based systems and hydroponic modular set-ups to soil-based modular kits and wire pot plant holders. Of course, DIY gurus should have little trouble fashioning their own versions.

"Plants need three things to grow: water, nutrients and light," Dawson says. He describes how this works in the case of a felt-based system, similar to that used by French botanist Patrick Blanc in his multi-storey-high creations: the roots intertwine with the material, and water is recycled through the felt, supplying nutrients and hydration directly to the roots.

Many of the hydroponic modular systems are essentially plastic pots filled with a substrate, such as aggregate, peat, coconut coir or rock wool, which holds the roots in place. (Some people prefer an inorganic growing medium because it won't decompose). The modules are attached to a wall, with an irrigation system installed above.

There is a variety of soil-based modular kits that can be watered in a similar way. These systems are often planted horizontally to start with and only hung on the wall when the roots start to take hold.

Dawson remains a big fan of the pot plant method, exemplified by Australian designer Joost Bakker's artistic installations of pot plants hung in wire grids attached to walls. "People have been hanging pots on the wall for a long time," he says. "It is the simplest way to create a vertical garden and is a medium people are more familiar with."

## LOCATION, LOCATION

The main thing to consider when deciding on the right system for you is where you actually want to build your vertical garden. Indoor green walls are popular in high-rise apartments and, if you want a modular system, the best option would probably be a hydroponic one as this eliminates the potentially messy combination of gravity and soil in your home.

A felt-based system indoors has a soothing and cooling effect, not dissimilar to a rainforest. Also, Dawson says, the roots are exposed to the airflow, acting as filters on the air around you.

An outdoor vertical garden can work beautifully to hide an ugly neighbouring wall or introduce greenery to a small courtyard. Any system should suit an outdoor space, but the position of your wall can play a major role in the decision. Ben Cusack of Lushe Urban Greening advises against a north or west-facing aspect for vertical gardens, as these can dry out quickly, particularly if a soil-based system is used.

Wire pot plant holders are equally well suited to indoor and outside settings, although Dawson advises against affixing them to north or west-facing outside walls as "this will just cook the roots of your plants".

Modular versions and pots are probably the most suitable options if you wish to grow vegetables and herbs in your vertical garden. ≫

# Are they eco-friendly?

A vertical garden can be a little temperamental and there are lots of elements to consider if you're going to have one that thrives sustainably. Things to look at before you get started include location, light, irrigation and plants.

A felt-based system survives with water running up and down its wall every day. If indoors, it may also require artificial lighting, adding to the energy costs. However, this can be avoided by choosing suitable low light plants for indoors, or by sticking to an outdoors vertical garden.

Carpenter says it is difficult to make an indoor system sustainable. "The issue with green walls inside is that they can take more from the environment than they give back," she says.

Dawson likens them to swimming pools, in that they require regular nutrients and ongoing maintenance. "On a small scale, maybe this system is not as green as people think. And you have the further problem that if the pump goes off, the garden dies."

In the case of hydroponic modular systems, many substrates are designed to hold water longer and watering is targeted to the roots of the plants. Most systems would require daily watering, especially in summer, unless planted with particularly hardy species.

However, using rainwater, which contains many natural nutrients perfect for plants, or greywater – Cusack uses his baby's bath water – lowers the eco-impact of your green wall. "Also, your pump costs would be minimal; similar to running a light bulb," he says.

Some modular systems incorporate a great deal of plastic; look for those made from recycled materials.

Whatever your system, plant selection is crucial to further reduce the amount of watering your wall will need. "It's best to consider drought-tolerant plants, such as grasses and succulents," Cusack says.

Carpenter agrees. "I've seen some fantastic aggregate-based green walls totally planted with succulents that require no irrigation," she says.

Carpenter says any indoor plants with low light requirements would work well in an indoor vertical garden. "Ground-floor rainforest species and plants, like epiphytes, which naturally live on trees, are ideal," she says.

If using soil in modular systems or pots, selecting a good quality potting mix and watering crystals will go a long way towards making your set-up water-efficient.

Vertical gardens may look like works of art but, as with any garden, they require maintenance to stay healthy and look their best. Be sure to feed your garden; a seaweed-based solution is often best. Also, prune back any browning foliage and regularly check your irrigation system is working effectively.

# DIY details

The sky's the limit when it comes to building your own vertical garden. There are a huge range of kits available that simply need to be clicked together, filled with substrate and hooked up to an irrigation system, but these can be expensive on a large scale.

To build a felt system, you will need a metal or timber frame with a waterproof backing. Two layers of felt matting can then be tacked to the frame, with holes cut into the felt to form pockets for plants. A reticulating irrigation system needs to be set up to run water up and down the wall. To plant out your wall, shake the majority of the soil from the roots of your plants before inserting them into the pockets and stapling the sides to tighten.

For a modular system, you can buy ready-made boxes, cells or pockets, such as the Gro-Wall from Lushe (*www.lushe.com.au*). If you're feeling adventurous, however, you could try constructing your own from a box frame, with wire mesh and shadecloth attached to the front. Fill your frame with potting mix or substrate and cut holes in the mesh and material to plant. A simple drip-feed irrigation system with piping inserted into the frame or substrate will meet your watering needs, and a trough installed along the bottom will collect any run-off, while a pump sends it back up the wall.

Whether a hydroponic or soil-based system, these gardens can be heavy and you'll need to make sure the designated wall can take the load.

Dawson is a big fan of the vertical garden, but says a similar effect can be achieved with a pot plant system. "Mind you, a few pots hanging on the wall does not make a green wall," he says. "[But] if you get pots that look the same and hang them in a pattern on a wire grid, it will have a striking effect. Just follow the rules of planting and design, grouping together different species you love."

A great tip is to secure the pots at a 45-degree angle. "Then plant them with strappy-leaf plants, like liriope," James says. "This way, the foliage will hang over the pots...helping reduce evaporation."

Carpenter says pots can be an easy and affordable solution with an appealing result. "It can be as simple as taking a piece of lattice and attaching some old garden pots to it with coat hangers," she says. "If planted with cascading plants, the foliage hides the lattice and pots. And this can be done with recycled materials."

Other creative options include canvas shoe organisers, ladders, or reclaimed gutters hung on the wall. "If you have an understanding of plants, the options are endless," Carpenter says. "It comes down to whatever you can conjure up and design."

*For more info and ideas, check out www.lushe.com.au, www.fytogreen.com.au and www.verticalgardenpatrickblanc.com.*