



Residence at Durg.



Residence at Pune.



Waves Hospitality, Delhi.

# The Green LADDER

When space crunch becomes the reason for excluding landscapes and greenery from living spaces, explore the vertical options!

Green is the colour of nature and Earth. It is a stimulant for balance, growth and prosperity. Psychologists and colour therapists strongly recommend planting more green plants to induce a sense of well-being in children, and at workplaces to boost employee morale. But in our cramped, space-starved cities, finding space for landscaping – or even basic gardening – is nigh impossible. However, there is a way out: Plant vertical gardens!

## Green Inventors

The concept of the green wall was invented and patented by **Stanley Hart White, Professor of Landscape Architecture** at the **University of Illinois** in the late 30s. But it was the legendary botanist **Patrick Blanc** who experimented with this concept and made it popular. Blanc has set up vertical gardens on some of the most prestigious structures around the world including the Hotel Pershing Hall in Paris, 21<sup>st</sup> Century Museum of Contemporary Art in Japan,

CaixaForum – a museum in Madrid, and the French embassy in New Delhi.

Closer home, **Anuradha and Pradeep Barpande, Directors, ELT India** have drawn inspiration from Blanc's work and have created absolute stunners on the Indian walls too, such as the vertical garden in the Mughal Gardens adjacent to the Rashtrapati Bhavan in New Delhi.

## Blossoming business

The Barpandes started their business with a small nursery called **Nandini Gardens** at Manjri in Pune; owing to stiff competition, distance from the main market and lack of space for expansion, the company shifted its focus to the soft-scaping contracting business in the mid-90s. They had once chanced upon an article on vertical gardens by Patrick Blanc in a newspaper, but dismissed the idea thinking, "Most areas in India are not suitable for normal greenery, forget vertical gardens!"



All native plants are sustainable but not all sustainable plants are native, so a good mix of native plants and non-indigenous plants are good for vertical gardens."

This changed when a client requested them to do some research on vertical gardens. On doing so, they learnt that there were five to six systems in the world that supported vertical wall installation. From them, fabric-based systems were popular, but such systems were installed in countries with cooler ambient temperatures.

Their task was to find the perfect system for Indian conditions, with the right mix of plants. Drip irrigation, fabric-based systems were popular options but they required a continuous supply of water. In a country where power cuts are a daily reality, running a system 24x7 was impractical. "After a lot of research, we invited **Elevated Landscape Technologies** aka **ELT Global** to India," says Pradeep. Negotiations with **Greg and Cheryl Garner, Principals of ELT Global**, led to the formation of a new entity named **ELT India**.

### Testing Indian grounds

ELT India introduced a Canadian modular system made of high-density polyethylene (HDPE) to the Indian market. The first load was installed across five places in India:

Delhi, Bengaluru, Chennai, Mumbai and Pune. After observing the impact of the weather on the green plants, the firm gained confidence and sold the new concept to clients with a one-year warranty.

They soon realised that vertical gardens have their own limitations. "The size and weight of large panels have an impact on load-bearing of the walls and inadequate resources or lack of access systems to reach greater heights restricted us to smaller systems," explains Pradeep. They got back to the drawing board and redesigned the size of the panels with the help of ELT Global. From 20 x 20 inches, the size of the panels was reduced to 12 x 12 inches and thickness was increased from 2.5 inches to 4 inches. "These panels were only manufactured in India. But it was a sturdier, sustainable option for all climates. It sold so well that even ELT Global bought it from us," he beams.

ELT India is working on innovations and improvements in the existing systems. Currently, it is working on hydrophilic foam panels, the next generation substrates which will be a viable substitute for the present

LANDSCAPE ARCHITECT: Shivram Somasundaram, Principal, Shivram Associates

PROJECT ARCHITECT: Atul Deshpande

PROJECT: Residence at Durg

LOCATION: Chattisgarh

YEAR OF INSTALLATION: 2012

CLIENT BRIEF: A state-of-the-art installation to soften the façade and subdue the imposing elevation of the structure.

CHALLENGES: Durg is a new market and a small town. So the logistics of getting the green wall to a small town was a challenge.

BENEFITS: In a small space, it allows one to introduce green.

RISE IN TREND: A new untapped market like Durg has its first green wall. There are many more markets waiting to be tapped.



systems and will be made available in compact household units. "Today, the price for the product in Pune and Mumbai is around Rs 1,650 per sq ft and in North India, the cost goes up to Rs 1,800 per sq ft," details Pradeep. "Introduction of hydrophilic foam green walls in mat format will bring down the prices."

As for plants, they always choose sustainable varieties. "All native plants are sustainable but not all sustainable plants are native," he explains. So they recommend a good mix of native plants and non-indigenous plants for building vertical gardens.

## Tips and tricks

Learning from experience and experimentation, Praveen now offers valuable tips to those who want to explore this option. First, he says, consider the basics. Finding the right surface would require one to find out the load bearing capacity of the base or the wall and its ability to hold a vertical garden. The chosen vertical surface must have adequate exposure to the sun, for different plants require different light intensity. Shade loving plants, comprising only five-six varieties, grow above 1,800 lux with 12 hours of light such as *Dracaena*, ferns etc; semi-shade loving plants like *Begonia* and *Impatiens* grow below 5,000 lux; from 5,000 lux onward, quite a number of combinations of plants can grow such as *peperomia*, *rhoeo*, *lily* etc till 20,000 lux.

Vertical gardens require a drip irrigation system, so good quality potable water is a must. To ensure excess water is not retained, the systems require clear, unclogged drainage. Last but not the least, one must have easy access to these plants at all times, for ease in maintenance. Soil mix should have the following properties: good porosity, good water-holding capacity, sustainability in the long run and should not change properties in long run. Vertical gardens cannot be set up on walls where one cannot trim fast growing plants or treat affected leaves. As it is a living surface, one needs to tend to it just like any other green area.

ELT India also takes into consideration minute details such as *Uttarayana* and *Dakshinayana*, which project the movement of the sun in different hemispheres, to understand and take into account the plant varieties that can grow in diffused light in absence of direct sunlight.



Green walls help to cleanse the air of pollutants and reduce the carbon footprint of people and fuel emission.



SAR building, Delhi



**LANDSCAPE ARCHITECT:**  
Umesh Wakaley, Proprietor,  
Roots Design

**PROJECT:** Bodhi Towers,  
commercial building

**LOCATION:** Pune

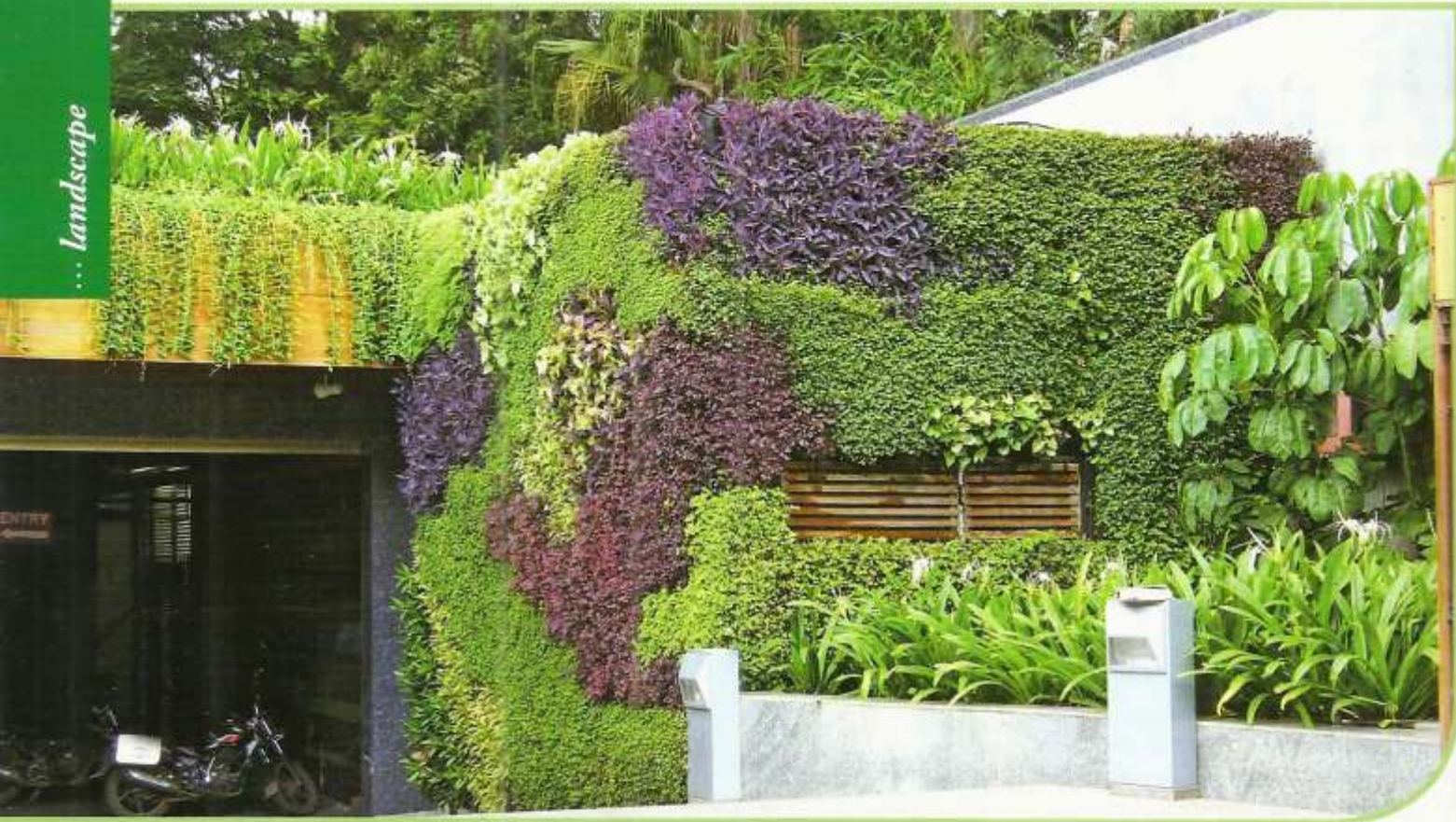
**CLIENT:** Clover Realty

**YEAR OF INSTALLATION:**  
2010-2011

**CHALLENGES:** Setting up a three-storey high green wall in the interiors was itself a challenge.

**BENEFITS:** A living green surface in the interiors provides a relaxing ambience. Plants have their own ornamental value.

**RISE IN TREND:** It is a new concept, but nowadays the trend has caught on and people are more aware about it. People are appreciating it and demand for it is growing.



**PROJECT ARCHITECT:** Ramesh Edwankar, Managing Director, Ramesh Edwankar and Associates; and Design Director, Ramesh Edwankar Design Consultancy Services

**PROJECT:** Corporate building

**LOCATION:** Pune

**CLIENT:** ABIL Group

**YEAR OF INSTALLATION:** 2011

**IDEA BEHIND IT:** The colourful vertical garden should be the most eye-catching feature at the entrance to the (otherwise neglected) basement and it should create a great first impression of the company.

**CHALLENGES:** Vertical gardens are an expensive proposition at the moment.

**BENEFITS:** When one enters the parking space of the building, the green wall is a relief to the eye. The vertical garden also provides camouflage to the construction defects of the structure.

## Words of caution

For those who do choose to install green walls, the commitment does not end with installation. Maintenance is of utmost importance. Generally, it is impractical to set up a green wall if it is facing a factory or industrial area that expels fumes or releases microbiotic hazards into the air. Plants need to be away from unnatural heat so it is best to keep them away from places that host barbecue parties. Moreover, it is important to consider whether the wall is close to the coast and if it will be subjected to salt sprays. Continuous blowing wind will also never allow a plant to flourish. Taking all these factors into consideration, the dynamic duo has continued to build up support and a clientele for green walls.

## Cool effects

Besides pleasing aesthetics, vertical gardens have other benefits to offer – for example, temperature reduction. In a small in-house experiment, the firm found that green exteriors can help reduce indoor temperatures. This discovery was made when they found that their watchman's cabin, made of MS Steel, was unbearably hot during the afternoons – so they covered



Anuradha and Pradeep Barpande, Directors, ELT India

## Berget India, New Delhi



←

The chosen vertical surface must have adequate exposure to the sun, for different plants require different light intensity.

*the entire cabin with the green living surface.* The temperatures were recorded over a couple of days and the temperature was brought down by a staggering 9.3° C. "Concrete does not heat up as much as steel, so the difference will not be that much in concrete structures. But it surely will help maintain an ambient temperature indoors even during the hottest summers," avers Pradeep.

There's more. Just like other green spaces, green walls help to cleanse the air of pollutants and reduce the carbon footprint of people and fuel emissions. They improve interior air quality by removing VOC and other harmful toxins like benzene and formaldehyde. They are ideal for hospitals as the greenery aids speedy recovery of patients and also help in buffering noise from the traffic on the road. The soil and plants grown in the green façade act as a natural filter and also insulate and cool the building envelope.

Biologists have indicated that vertical gardens can increase biodiversity by creating a habitat for birds and insects. Moreover, they increase real estate value by creating fabulous impressions. And not to forget... vertical gardens qualify for LEED certification points from USGBC.

Who would need more reasons to invest in green walls? **i**

TEXT: Anuja Abraham

#### CONTACT

ELT India  
Mobile: (0) 9923020000  
Ramesh Edwanker  
Tel: 022-2446-8905

Shivram Somasundaram  
Mobile: (0)95453 11313  
Umesh Wakaley  
Mobile: (0)93712 75220