

## LIVING WALLS TO COMBAT POLLUTION

Vertical gardens, Green walls or Living Walls as they are called were the innovation of French botanist Patrick Blanc. These vegetated surfaces don't just look pretty but can slash air pollution in cities. According to Patrick Blanc, the design of vertical garden



BY [REALTY PLUS](#)

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**Vertical gardens, Green walls or Living Walls as they are called were the innovation of French botanist Patrick Blanc. These vegetated surfaces don't just look pretty but can slash air pollution in cities.** According to Patrick Blanc, the design of vertical gardens is a mix of science and aesthetics. For example, designing a garden for a tall building means one needs shade-loving plants at the bottom and light-loving plants at the top. Other considerations are north or south orientation, the climate, use of the building etc. One might assume a vertical garden would be more challenging to maintain than a horizontal one, but Blanc says the opposite is true. "The garden is built on a system comprising a layer of PVC and felt within a metal frame that is light enough to be hung on a wall or suspended in mid-air. The gardens only need to be maintained three times a year with an exterior gondola. They are watered with nutrients every day automatically through a pipe with holes every 10cm. It's important to keep a high level of bio-diversity visually, as well as ecologically, especially in cities. Having many varieties, encourages different animals to live within the plants," Blanc said. Due to these very reasons, vertical gardens are now a ubiquitous sight in cities around the globe. Other than reducing emissions from vehicles, city administrations are turning their attention to trapping the air pollutants. And that's why the vertical gardens are being recognized as alternative solution to improve air quality. Central London hotel Athenaeum has seven storeys of lush greenery, while the entire side of Madrid museum, the CaixaForum, is blanketed in plants and flowers. In Paris, the entrance to the iconic Musée du quai Branly is a green wall made of 15,000 plants across 800 square meters – and by 2020, the city aims to have 100 hectares of plant-entwined rooftops and walls. Mexico is adding greenery to more than 400 public places across the city to produce oxygen and help filter the heavy metals and dust from the air. Similarly, in Sao Paulo, the South-facing walls windowless walls are being converted into lush, vertical gardens. Singapore has in fact started the sky rise greening movement that is helping reduce the urban heat island effect, contributing to the city's beautification efforts, and bringing nature back into its skyscraper buildings. Singapore is now officially home to the world's largest vertical garden. Taking a cue from the Singapore and Mexico city, the Prime Minister's Office (PMO) has asked the Ministry of Housing and Urban

Affairs, and the Ministry of Environment to develop vertical gardens across the Indian cities.



**Delhi:** In a bid to increase green cover in the city, the Delhi government has asked the

major land and road-owning agencies to start vertical gardening. Delhi Development Authority (DDA), the government's Public Works Department (PWD) and the three municipal corporations have started vertical gardening initiative by covering pillars under flyovers with vertical greenery. The flyovers to be transformed include the ones at Lajpat Nagar, Andrews Ganj, Sarai Kale Khan, Kalkaji, Nehru Place and Raja Garden, which will also use recycled water. Delhi Metro, eight pillars of the elevated Blue Line (Dwarka Sector 21-Vaishali/ Noida City Centre) between Mandi House and Pragati Maidan stations are also sporting vertical gardens. The pillars are covered by a mesh like frame, on which small pots with plants are mounted. The pillars are located at the junction of Sikandra Road, Tilak Marg and Mathura Road, one of the busiest intersections in the city. **Bengaluru:** Bengaluru first vertical garden was installed by NGO SayTrees in the city on one of the pillars of the Hosur Road flyover. The garden boasts of around 3500 saplings of more than 10 species. An automated drip irrigation system has been installed that will water these saplings every day. Every side has a creative design which makes the area look like a work of art. **Hyderabad:** Just like Bengaluru, Hyderabad also has been facing the problem of decreased greenery due to rapid urbanisation. In an effort to green the city extensively, over 18 GHMC (Greater Hyderabad Municipal Corporation) offices, including the circle and divisional offices, will be provided with vertical gardens. Built of wood, the vertical structures will vary from 70 feet height up to 400 feet height. The total green cover of Hyderabad is a dismal 5 per cent of the total built-up area. According to global standards, the green belt should be 15 per cent of the total built up area. While the vertical gardens' initiative is aimed at curbing pollution, it will also make official

spaces environment-friendly and help create a bio-aesthetic environment.



**Kochi:**

Among the many firsts that go to the Kochi Metro's credit is the vertical garden that will adorn over 200 Kochi metro pillars and will use 3,000 tonnes of compost generated from municipal waste every year. Every sixth metro pillar will have a vertical garden. Advertisement boards will be placed on the others, earning revenue for the KMRL. **Ahmedabad:** The garden department under the Ahmedabad Municipal Corporation (AMC) has planned to build vertical gardens along the pillars of flyover near Helmet Circle in Gurukul. Interestingly, there is no additional cost for this on the AMC. The civic body has used material which was used in the flower show 2018. The civic body is planting mainly the Indian plants. **Gurugram:** Vertical gardens isn't new to Gurugram with several offices buildings in the city opting for it. The Municipal Corporation of Gurugram (MCG) recently passed a proposal to create vertical gardens on the pillars of Rapid Metro in the city to expand the city's green cover and fight air pollution. The vertical gardens will be built on a metallic frame structure around the pillar, held together by wire mesh. This will also make sure that the plants' roots don't harm the pillar's structural integrity. The final modalities of how many gardens will be created are being worked out by the MCG and the Rapid Metro officials. These vertical gardens will be have anti-pollution plants that help reduce smog and produce oxygen 24x7. **Pune:** In its attempts to make Metro Rail greener, Maha-Metro has decided to develop vertical gardens on

the pillars of the Metro in the city from the Pimpri-Chinchwad to Swargate corridor and from the Vanaz to Ramwadi corridor. According to Maha-Metro officials, the metro pillars in city will be covered by a mesh like frame, on which small pots with plants will be mounted and will use recycled water through a drip irrigation mechanism or hydroponics technology in same places. The vertical garden will also help save on the cost of colouring the pillars. **The New Green Turn** The internet enabled “City Tree” is the reinventing of the Patrick Blanc vertical gardens. Created by German architect Dénes Honus and Victor Splittgerber, Wu Liang and Peter Sängner – the co-founders of Green City Solutions, it is a real piece of smart-city infrastructure - the CityTree cleans the air, beautifies the city and collects data. One CityTree is as effective in combating air pollution as 275 regular planted trees, but it requires 95 per cent less space, and is at least 10 times cheaper. The standard unit, four metres high, is made of steel components which are plugged together and filled with individual pots of moss cultures – 1,600 per unit – each monitored by our IoT [internet of things] solution in the background. A covering plant is added to shade the moss culture, and we can customise the design, if required. A water tank collects rain from the roof surface, and solar-powered sensors alert the system to give the plants optimal water and nutrients automatically. The units are also equipped with technology to collect data about the environment, traffic and climate conditions.

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