AN INTERVIEW WITH STEFANO BOERI

STEFANO BOERI ARCHITETTI, MILAN

Every four months, arborists and botanists will rappel down from the roofs of Milan's Bosco Verticale, cutting and pruning, jumping between balconies and being offered cups of coffee as they descend toward the ground. These workers have been referred to as 'The Flying Gardeners', and their work scales buildings that almost resemble M.C. Escher paintings, with oblong balconies that jut from the side of canopy-covered façades, and trees that survive on miniscule amounts of space.

Bosco Verticale is Italian for 'Vertical Forest', and these buildings are the brainchild of Italian architect Stefano Boeri. Stefano started to imagine high-rise buildings that were capable of housing trees many years ago. He wanted to avoid including trees for ornamental or decorative use – instead, he wanted to use trees and plants for social and practical good.

The first Vertical Forest was built by Stefano Boeri Architetti in Milan in 2014, hosting 900 trees from 94 different species. The trend has escalated quickly, with plans for new skyline jungles →

all over the world: Beijing and Nanjing in China have their own Vertical Forests in the pipeline with Stefano Boeri, as do Utrecht, Lausanne, São Paolo, Los Angeles, Paris and Tirana.

Though the original Milan towers were built with affluent families in mind, there have been developments, changes and variations in the ongoing designs. Vertical Forest projects such as Stefano's new social housing in the Netherlands form a juxtaposition to these first homes in Milan. "For me that is a very important step," Stefano explains. "Milan was designed for people with families and a good income, but I always knew that I wanted to make Vertical Forests as a new family of buildings that can be built anywhere, for people of all backgrounds, and in any kind of climate condition."

Undoubtedly the largest and most ambitious project of its kind, Liuzhou Forest City in China plans to be an entire city of Vertical Forests. It will hold a million plants and 40,000 trees and be home to 30,000 people, with hospitals, schools and small-to-medium sized buildings – all with trees on the façade.

The passion that drives Stefano's designs is his desire to demonstrate the potential for low-cost buildings that include trees. He made the decision not to put copyright on his Milan building, explaining: "I want architects to copy and improve on what we've done, to kick off a new kind of architecture that can help humanity to improve quality of life and slow climate change in a very pragmatic and serious way."

Vertical Forests aim to tackle the problem of carbon emissions right at the source: around 30% of these emissions are absorbed by forests. "To move forests into cities is, I believe, a very efficient way to fight air pollution straight away," says Stefano. Far from causing them harm, CO_2 is an importance source of nourishment for trees, which photosynthesise it into the glucose they use for respiration.

Maintaining the trees is essential, and the team that looks after the trees and plants on the façade of the building has been keeping a close eye on them since the Milan towers' inception. Each day they check the irrigation, humidity and conditions that the plants are exposed to. The trees and plants are seen as a common good – a way of cleaning the city's air, improving species diversity, and boosting mood, rather than simply an aesthetic benefit for the apartments' owners. They are therefore under the ownership of all of the apartments' owners, not individual residents.

Has it been a challenge to get the trees of the Vertical Forest to establish? "We have monitored

The original Bosco Verticale in Milan

Concept for the Liuzhou Forest City in China

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Concept for Paris's Forêt Blanche

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and evaluated these trees for five years now and we don't have any problems, besides two trees that were suffering," says Stefano. "You have to consider that we have had more than 100 species of different plants in the two towers."

On the Milan buildings, the team has tried to use local Mediterranean and European plant and tree species; any issues and problems are examined, and the solutions are carried over to other projects. Trees that lose their leaves in the winter were placed on the nose of the Milan building, to allow the city's high levels of sunlight to permeate through and into the deeper reaches of the building. Having seen the success of this, the team decided to use these types of trees to a greater extent on the Netherlands project, where the sun exposure levels are much lower, in order to allow more light to reach the back end of the building.

For Stefano and his team, problems are seen as opportunities to learn, rather than setbacks; the loss of the two trees in Milan was a useful lesson, and the team now knows not to include those two tree species in future developments. "We play extremely close attention when we're selecting plants, shrubs, bushes and trees, in order to respect the humidity, sunlight, exposure and wind conditions that we have in different parts of the building," Stefano explains. "Milan is teaching us so much. I hope that we will learn from any possible negative consequences." ■