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The Vertical Forest of Architect Stefano Boeri

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Italian architect Stefano Boeri thinks large!
In a revolutionary collaboration among architects, engineers, and botanists, a new style of urban eco-architecture is under construction. Boeri Studio's *Bosco Verticale* (Vertical Forest) – a residential high-rise complex with trees on every balcony – is the show-stopping central focus of an overall design to revitalize Boeri's home city of Milan.

Two of the ten structures anticipated to comprise the Vertical Forest are near completion and were previewed in October, 2011.

In the architect's words, "*Bosco Verticale* is a model of vertical densification of nature within the city."
Milan's current plan, a matrix of 150 separate redevelopment projects begun in 2007, is a massive and dynamic undertaking for urban regeneration. A video of the maquette, showing many of its most salient features, including a few of Boeri's concepts, can be seen here:

Boeri proposes using biodiversity as a basis for improving habitability and sustainability in the world's most densely populated cities: reclaiming decayed industrial areas; repurposing abandoned farms; ringing the metropolis with trees to encourage the return of wildlife; and building low-density, low-cost housing with recycled and prefabricated materials. Boeri conceives of these as "devices for the environmental survival of contemporary European cities." In his recent book, *biomilano*, he outlines the master plan in a "glossary of ideas." The computer-generated video below (without sound) provides a general overview of Boeri's vision, with the first two Vertical Forest towers as its centerpiece:

These initial 26-storey and 18-storey *Bosco Verticale* examples measure approximately 361 and 249 feet in height (construction details can be found at PERI). Their staggered, cantilevered balconies, made of reinforced concrete with 4.27-foot parapets, will host a total of 900 trees, designed to aid in the creation of a microclimate by producing humidity and oxygen while protecting the residences from solar radiation and acoustic pollution. The plantings, according to London's Garden Museum director Christopher Woodward, will feature oaks and amelanchiers that also serve to shade each apartment's windows and filter city dust particles in summer, while allowing warm sunlight through their bare branches and into the living spaces in winter. Plant irrigation will be supplied by filtering and reusing the gray water the building produces, with Aeolian and photovoltaic energy systems in place to increase the towers' self-sufficiency.

A looming question is how, given the customary depth required for the root system of trees, these plantings can be expected to achieve the lushness and 10- to 30-foot heights that have been projected. A similar undertaking in the past, Paris' 10-storey apartment block "La Tower-Flower" (2004, architect Edouard François), was less ambitious by using bamboo in 380 concrete tubs surrounding 30 dwelling units. Viet Nam's "Stacking Green" – a four-storey single-family home completed by design firm Vo Trong Nghia in 2011 – was clearly conceived with low-growth vegetation in mind. The current design, however, of Dutch MVRDV's 21-storey Torre Huerta in Valencia, Spain, is planning to house citrus, olive, and almond trees on the jutting terraces of its apartments. Time will tell how successful these large-scale residential eco-visions will be.

Boeri's credentials as architect, urbanist, professor, and political activist for a better Milan are indisputable. He was also recently called to São Paulo, Brazil (home of the latest cult "living wall" design building *Harmonia 57*), to curate the inauguration of a six-month government initiative ("São Paulo Calling"), addressing public welfare and sustainability issues for the three million people living in its self-organized slums (*favelas*).

Certainly other current Boeri projects (such as "Solid Waves" in Astana, Kazakstan) reveal the fertility and flexibility of this architectural designer's mind. But whether or not his intensive collaboration with engineers, botanists, and horticulturalists on the *Bosco Verticale* can fulfill a utopian dream of living architecture on this scale remains to be seen.

In the meantime, the very attempt at this Vertical Forest has received unusual attention from a most unexpected source. The project has inspired a bizarre performance art piece in the form of an eponymous chorale, written and conducted by Benji Jeffrey at London's Inland Studios in January 2012.

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