



The Vertical Forest
Photo Credit: Stefano Boeri Architetti

ELEVATING NATURE: MILAN'S BOSCO VERTICALE

By Reid Coffman, MLA PhD

Finding nature in a high-rise apartment seems quixotic, but it may be just the biophilic injection dense cities need. After centuries of practice distinguishing the urbane from wilderness, a pair of residential high rises in Milan, Italy has flipped the paradigm by proposing a new social ecology within its building façade, and is providing an option for ultra-urban access to nature.

[Bosco Verticale, designed by architect Stefano Boeri](#), opened in 2014 to provide residents

with an alternative to suburban single-family neighborhoods. Boeri envisioned public exchange with neighbors occurring through a terrace-scape on the building's exterior façade. In this space, residents would have views of nature, direct access to vegetation, and the opportunity for neighborly exchange about the pleasures of gardening, plants, and wildlife. Relying on a compact intimacy of the gardening tradition, Bosco Verticale expands Milan's cultural habits of terrace gardening into a community level asset that occurs

as a forest on a building within the city.

The eighteen- and twenty-six-story tree-covered towers emerge from the historic stone and brick city as an aberration to the sculptured glass buildings flourishing today in Milan's Porta Nuova district. Taking a closer look at the neighborhood, it is easy to see how Bosco's 800 trees, 4,500 shrubs and 15,000 plants are an unfolding evolutionary adaptation of the local balcony gardening tradition.

New opportunity comes from how the terraces connect trees and people. By looking at the façade from the city, the overall terrace layout breaks regimented uniformity common in high-rise balconies to create a seemingly random visual condition. This design offers spaces that accommodate tree canopies while echoing the mysteries of larger systems that are at play.

The selection and arrangement of trees and vegetation creates neither landscape nor garden. It is a novel environment, a sort of phyto-scape or terrace-scape, if you will. More than simple balcony gardening, the setting provides an exposure to plants and wildlife inside and outside the building while delivering a shared set of ecological benefits including: beauty; mystery; light filtration; and air and temperature regulation.

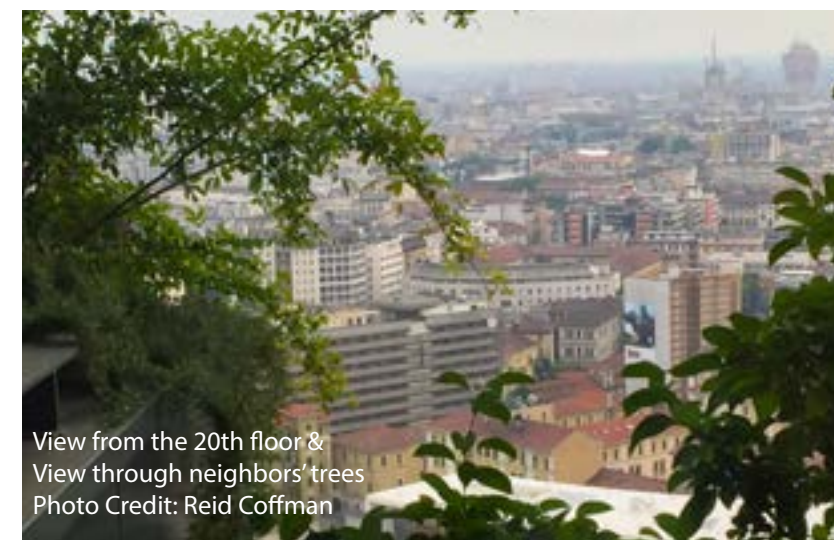
It is rare to have an intimate experience with plants in a high-rise building, let alone one that is so exposed to the public. Through the windows, residents are continuously oriented at

varying distances from trees and plants creating a feeling of being cloaked in nature. Yet, in the background, the city is alive with activity, creating an extremely uncommon association of nature in its context. For example, residents can sit at the kitchen table within a few inches of glossy green foliage and beautiful warm colored branches while, through the canopy, they can enjoy the view to the city streets filled with motorists, bicyclists and pedestrians. This comforting prospect is enriched with the realization that the vegetation being enjoyed is not one's own, but a neighbor's.

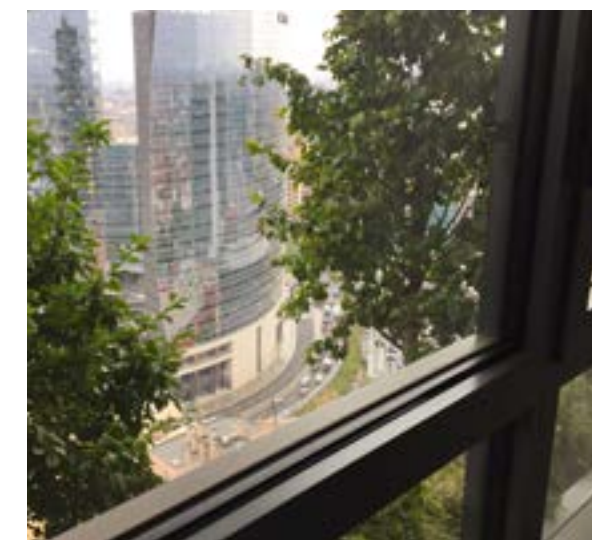
The plants enjoyed through the windows are part of a much larger interdependent social experience. The tree canopies visible through windows are actually growing from a downstairs neighbor's terrace and the tree planted on one's terrace is enjoyed primarily by the upstairs neighbors. This overlapping creates a one-of-a-kind social ecological setting that exceeds anything found in the single-family home suburban garden.

The experience is magnified when standing outside on the terrace. Every terrace is more than an extension of private real estate. Stepping outside, one notices very few terraces align on the same floor creating a nice sense of privacy. Instead, diagonal views downward and upward offer views that prioritize the vegetation while composing a casual environment of chance encounter common in the city. These staggered, off-set terraces are where the neighborly discussions of plants, weather, and local community can begin.

The engineering systems that provide support, water, and nutrients to the trees and plants are equally unique. Structural planters contain light-weight designer growing media, irrigation tubing, and drainage pipes that service the plant roots while wires stabilize tree trunks to withstand extreme winds. All the plant material is maintained and stewarded by a team of professionals that is governed by a residential board making the entire façade a public space organized and operated by the community.



View from the 20th floor & View through neighbors' trees
Photo Credit: Reid Coffman





The neighborhood context
Photo Credit: Stefano Boeri Architetti

The settings at Bosco Verticale begin to defy current categorization. Using the term “garden” to describe these places is inaccurate, because gardens have traditional practices, orders, and narratives that fail to properly translate in these new settings. Bosco Verticale places humans in contact with nature, and subsequently other people, in a novel way to reveal the innovative potential of biophilic architecture.

Other speculative projects offer similarly compellingly experiences that require translation and definition. At the building scale, [Torre Rosewood](#) by Ateliers Jean Nouvel (São Paulo, Brazil), [Solaris at Fusionopolis](#) by T.R. Hamzah & Ken Yeang (Singapore), and the [M6B2 Tower of Biodiversity](#) by Eduardo Francois (Paris, France) each aggressively address social and vegetative dynamics in the exterior façade and are far from being categorized as gardens. Meanwhile, at district scale, [New Government City](#) by Balmori Associates (Sejong, South Korea) is exploring how living architecture engages urban culture and

politics and, if expressed beyond convention, could offer a larger language of urban nature. In creating innovative ways to engage nature, we must develop new verbal expressions and terminology to help explain the value and benefits of such experiences.

It turns out that growing a vertical forest on a building façade is a visionary, workable, and realistic form of biophilic architecture that can be a refreshing way of accessing nature in the densifying city.

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Photo Credit: Stefano Boeri Architetti

RESOURCES/PROJECTS:

Journal of Living Architecture. Research. <https://livingarchitecturemonitor.com/research>.

M6B2 Tower of Biodiversity. Eduardo Francois. <http://www.edouardfrancois.com/en/projects/towers/details/article/58/m6b2-tour-de-la-biodiversite/#.WplTKejwaUk>.

New Government City. Balmori Associates. <http://www.balmori.com/portfolio/new-government-city>.

The Vertical Forest. Stefano Boeri Architetti. <https://www.stefanoberichitetti.net/en/portfolios/vertical-forest>.

Torre Rosewood. Ateliers Jean Nouvel. <http://www.jeannouvel.com/en/projects/torre-rosewood>.

T. R. Hamzah & Ken Yeang (April 2014). Solaris at Fusionopolis. Greenroofs.com. <http://www.greenroofs.com/content/articles/126-SOLARIS-at-Fusionopolis-2B-From-Military-Base-to-Bioclimate-Eco-Architecture.htm#.WplVaejwaUk>.



Looking up from the public park
Photo Credit: Elijah Less