

VIA VERDE — THE GREENWAY



GRIMSHAW

Key Sustainability Facts

PROJECT SITE
Brownfield

TRANSECT ZONE / CLIMATE ZONE
4A - Mixed, humid

ECOREGION
Nearctic / Northeastern Coastal Zone, Southern New England Coastal Plains and Hills

OPERATIONAL ENERGY/CARBON

- > Reduction in energy cost from an equivalent new building: 29%
- > Energy/fuel types annual energy demand carbon intensity: total Site PV annual energy generation is 66 kw, 3% renewable. Off-site Green-e accredited tradable renewable certificates (wind) account for 35% of the annual electric energy consumption.
- > Optimizations were focused on reducing energy consumption. Energy efficiency measures incorporated into the building design include highly insulated cladding and roofs, thermally isolated operable windows with trickle vents. These energy-efficient features reduce utility bills for tenants, increasing affordability, and help improve indoor air quality.

WATER

- > Reduction of water use from an equivalent new building: 34%
- > Reduction of potable water use from an equivalent new building: 86%
- > Optimizations were focused on reducing potable water consumption which included basic demand reductions with plumbing fixture specifications, and a rainwater collection strategy for landscape and garden irrigation.

EMBODIED CARBON

- > Reductions in embodied carbon focused on the following:
 - 78% of the construction waste was diverted from landfills
 - 20% of the total building materials content, by value, has been manufactured using recycled materials.
 - 24% of the total building materials value includes materials and products that have been manufactured and extracted within 500 miles of the project site.
- > Additionally, most of the façade was prefabricated off-site. This reduced material waste associated with on-site construction. It also reduced the amount on energy used for installation on site.
- > Note the project has access to a nearby transit hub, subways and buses reducing the carbon footprint of the residents. The project received a waiver from the zoning requirement for parking, thereby discouraging individual automobile use/ownership.

EQUITY

- > The project allowed for both rental and ownership models of residency. Although these were separately financed, they are commonly managed and share the same suite of open spaces and common areas. The developers used a range of metrics to allow for a wider than normal range of income levels to be able to rent or buy units – from low to middle.
- > Via Verde's sustainable design is expected to help maintain housing affordability while providing immediate savings in utility costs, when the project is compared to a baseline development without similar green features. Total savings are expected to exceed \$115,000 annually, an average of approximately \$518 per unit, representing a 27% reduction compared with a baseline building.

Alignment with UN Sustainable Development Goals

SDG 3 GOOD HEALTH AND WELL-BEING
SDG 11 SUSTAINABLE CITIES & COMMUNITIES

The roof garden, design, programming and community partnership together introduce an innovative project template into the region, piloting new approaches for better health and well-being and architectural integration through an ecological and social sustainability approach to community-oriented design.

SDG 7 AFFORDABLE AND CLEAN ENERGY

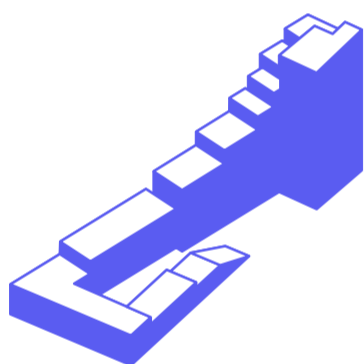
The project's PV arrays introduce an affordable integration of on-site energy generation with passive thermal comfort design for co-optimized design strategies.

SDG 10 REDUCED INEQUALITIES

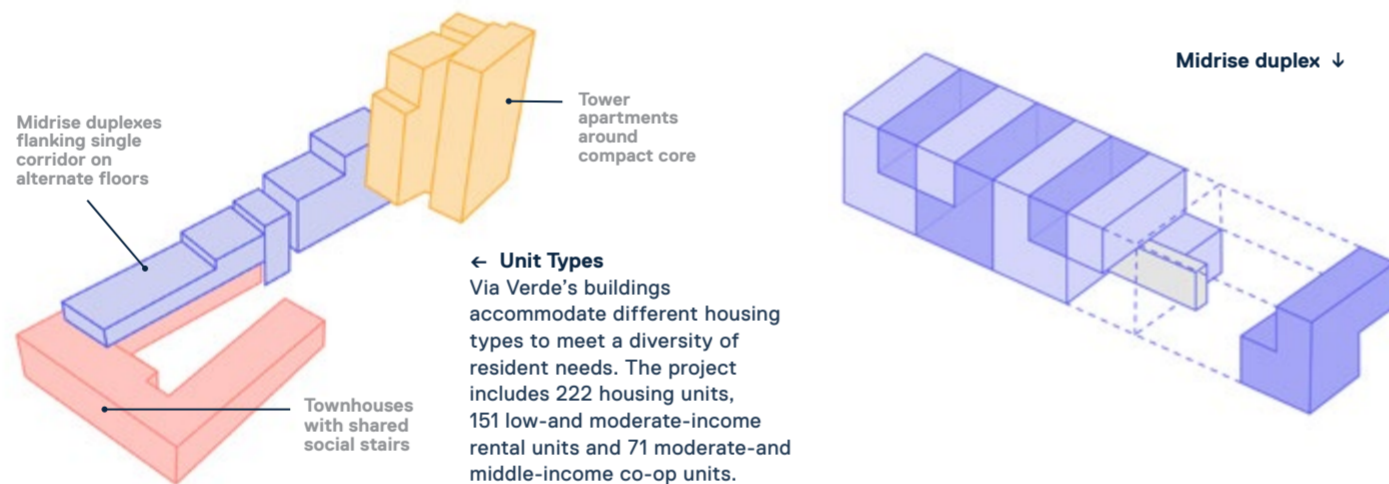
The project provides a model for developing high quality inclusive housing in a nation with rising inequality.

Location The Bronx, New York, USA
Completion 2012
Client Jonathan Rose Companies / Phipps Houses
Certifications LEED Gold, EGC

Project Partner/Lead Vincent Chang/ Niko Dando-Haenisch
Project team Grimshaw, Dattner Architects, Lettire Construction Corp., Robert Silman Associates, Front, Ettinger Engineering Associates, Brightpower, Lee Weintraub



SUSTAINABILITY AND REGENERATIVE DESIGN CASE STUDY



Grimshaw's South Bronx housing scheme focused on green innovations and passive cooling that seek to generate health and wellbeing outcomes, at the same time as reducing construction and operational costs. Our designs allowed for the developer to offer affordable housing for low to middle income renters as well as private ownership.

Prior to the competition, the site had been unusable due to its constrained geometry and limiting zoning requirements. The financial models for affordable housing in NYC are very limiting – controlling the amounts that can be subsidized by the city and the access to financing. For decades this has resulted in relatively mundane and unimaginative solutions – with standard materials and floor plates. Our design unlocked its potential by filing a land use and zoning exceptions under the city's environmental review process. These were granted both because of the political support for the project as well as the quality of the design.

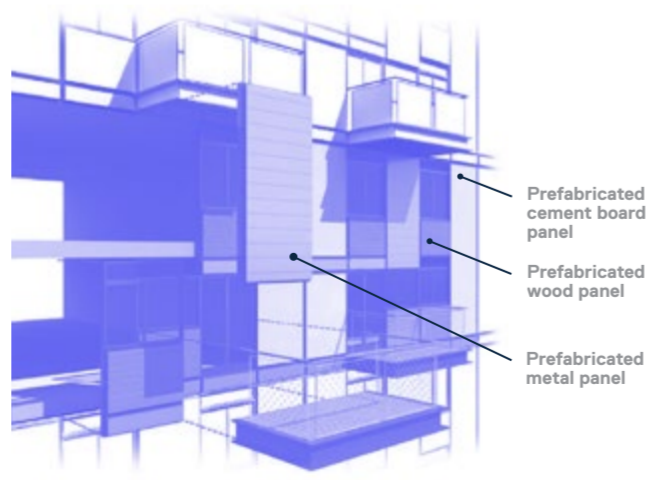
Making the scheme affordable to build and operate was key. We made sure that our innovations could save both money and time. An example of one such innovation is the prefabricated façade system – which allowed for improved quality and materiality. Further, we relied on standard, simple structural solutions after proving they were more efficient and less expensive – such as the concrete for the high-rise, but block and plank for the mid and low-rise.

Although the UN SDG's were not in mind, the project addresses the following themes: poverty reduction; good health and well-being; clean water and sanitation; affordable and clean energy; reduced inequalities; sustainable cities and communities.

Unlocking the site and the design opportunities required filing a land use and zoning exceptions under the city's environmental review process. These were granted both because of the political support for the project as well as the quality of the design.



↓ Exploded view of facade system



Axonometric diagram →

- Form** – A thinner building envelope, central court, and an ascending, spiral building mass successfully responds to the existing solar and wind conditions.
- Roof gardens** – The garden, beginning as a courtyard at ground level, serves as the community's organizing element. Access to the ascending roofscape with a series of programmed, south-facing roof-gardens creates opportunities for active gardening, passive recreation and social gathering. Note the gardens include an amphitheater (2nd fl.), a grove of conifer trees (3rd fl.), a fruit tree orchard (4th fl.), community gardens (5th fl.), and a fitness garden (7th fl.), with a rooftop dining terrace above the tower's 20th floor. The upper floors include six additional gardens that are planted with native vegetation. Although not accessible to residents, these areas provide building insulation, reduced heat absorption, and advanced stormwater management; rainwater is harvested and stored in tanks to supplement the irrigation systems servicing the rooftop gardens.
- Façade** – The building's high-performance façade uses a prefabricated rainscreen exterior glazing and cladding with composite wood, cement, and metal panels. The design is engineered to minimize water from infiltrating the exterior wall and damaging the building materials, promoting building longevity. The locally fabricated system includes shop-welded cold formed metal framing (CFMF) studs, exterior-grade sheathing, integral punched windows, fully-gasketed aluminum panel-to-panel joinery, AVB membrane coverage, complete with outboard-insulated rainscreen finishes.
- Ground floor** – A main point of entry leads to residential lobbies and townhouse entries located around a courtyard. The ground floor features retail, live-work units, and a 5,500 square foot community health center creating a lively street presence. The clinic, an affiliate of a larger local clinic, fulfills part of the project's aims to center itself on health and wellness.
- Townhouses** – The project's townhouses include a combination of one-, two-, and three-bedroom garden and walk-up style units with social stairs.
- Midrise duplexes** – The duplex housing typology is achieved with central access corridor on every other floor and varying the width and depth of the first and second floors of each unit. This duplex-style design was necessitated by the building's narrow footprint and relatively shallow depth (approx. 48').
- Tower apartments** – The 20-story tower is comprised of studio, one-, two-, and three-bedroom apartment rental units.
- Penthouse** – Cultivating the development of community and pride of place, Via Verde has reserved its premium space – the penthouse floor of the tower building – for the community common room, open to all tenants.
- Photovoltaic sunshade** – Photovoltaic panels provide solar energy to Via Verde and are incorporated into outdoor pergolas. Additionally, the terraced, south-facing walls harness the unobstructed southern exposure with six arrays of photovoltaic (PV) panels mounted to the building's exterior. Combined with additional arrays on the roofs of the fifth and seventh floors, the project's PV panels produce 66kw of electricity, or the equivalent of \$12,000, or \$54 per unit, in electricity savings annually.



Healthy Living ↑

All units feature two exposures to promote cross-ventilation, daylight, as well as views, with a private outdoor balcony or terrace. Additionally, the project promotes healthy living by implementing the City's Active Guidelines. There was also a management plan for green housekeeping and each apartment features low- and no-VOC finishes.

Community ↓

To ensure the success of the community gardens, the developers partnered with GrowNYC, a local nonprofit organization, to manage and operate the gardens during Via Verde's first two years of operation. The objective is to educate and train residents so that the gardens are managed and maintained entirely by the Via Verde community after this initial start-up period. Note the incorporation of rooftop community gardens and the nonprofit start-up management model is being used in other projects involving the Via Verde development team.

