The Evolving Metropolis
2019 IABSE Congress New York City

IABSE 90 YEARS

NHNY Via Verde – A New Design Standard For Affordable Housing

Ian Pendleton PE

Senior Project Engineer

Silman

New York City, NY 10005

pendleton@silman.com

Ian Pendleton has been a structural engineer with Silman in New York City since 2002. He has 20 years of professional design and consulting experience.

1 Abstract

NHNY Via Verde is a global model of sustainable housing development. Located in a Bronx brownfield, the 294,000 SF structure contains 222 residential units with 40,000 SF of green roofs and open space. Cascading buildings surrounding a central courtyard consists of a 21 story tower, 16- to 7-story midrise and 5 to 3-story low-rise. Interconnected, accessible green roofs provide continuous access from the courtyard to 12th level roof: the "via verde" or "green way". Primary structure consists of cast-in-place concrete at the tower and concrete masonry bearing walls with precast concrete plank at mid- and low-rises. These conventional materials are arranged in unconventional ways to maximize efficiency, generating the architectural unit layout from optimal plank spans and eliminating façade bearing walls for prefabricated façades with sunshades and balconies. Secondary structural steel framing supports low rise storefronts, extensive roof PV panel arrays and a rainwater catchment system. Fly ash replacement was maximized in all concrete, and the time effect on strength gain was managed in construction. The large building volume required internal building separations with three independent structures engineered for drift compatibility. Foundation pile capacities vary to optimize efficiency to wide-ranging building heights.

Keywords: affordable housing; housing developments; sustainable design; CMU construction; precast concrete plank

2 Introduction

Via Verde (The "Green Way") is a 294,000 square foot, 222-unit affordable housing development located at a former brownfield site in the South Bronx. The $98-million development was the winning entry in the 2006 New Housing New York Legacy Competition, sponsored by New York City HPD, AIA New York, NYSERDA and Enterprise Community Partners. The competition's objective was to set a new standard for affordable housing and sustainable development. Architectural firms Dattner and Grimshaw together with developers Jonathan Rose Companies and Phipps Houses created the winning entry to satisfy the competition's multiple goals of innovative design, replicable affordable building models and economic and environmental sustainability. The completed project has been well received by the local community and the affordable housing sector at large. Robert Silman Associates is proud to have provided structural engineering services to assist the winning team in realizing the project's goals on schedule and within budget.

The building organization consists of three linked structures of varying height in a stair-stepped arrangement: a tower, a mid-rise and a low-rise. A 20-story tower anchors the north end of the site.

https://doi.org/10.2749/newyork.2019.0271
Distributed by Structurae