



Empire Building Challenge | Partner Summary

March 22, 2021

L+M DEVELOPMENT PARTNERS



Who We Are: Developer / Owner / Builder / Manager



Since 1984, L+M has been a pioneer in mixed-income, market-rate and mixed-use developments that revive and transform neighborhoods.

- Acquired, built or preserved nearly 35,000 residential units and over 1.2 million square feet of retail and community facility space, representing approximately \$10 billion in development and investment
- Wide variety of project types with complex financing structures
- Development, construction and property management capabilities with over 700 employees
- Active in NYC-Metro Area, New Jersey, New Orleans, Washington, D.C., San Francisco, Los Angeles markets
- Guided by a double bottom line philosophy that combines successful developments with a commitment to corporate social responsibility, philanthropic efforts and enhanced community opportunities

L+M is a socially-responsible developer committed to sustainability

Over the past decade, L+M has invested millions to reduce carbon emissions and energy consumption



Arverne View: 36 kW solar PV



Marcus Garvey New Development Phase 1: Geothermal Manifold

L+M has significant experience with large-scale retrofit projects and is at the forefront of integrating Passive House standards into new affordable housing developments.

By incorporating energy efficiency into our planning, identifying opportunities for efficiency and resiliency measures during development and finding retrofit solutions at our existing buildings, we are dramatically reducing the amount of energy our buildings consume and their overall impact on the environment.

Sustainability measures planned or implemented include:

- Passive house certified building construction
- Solar PV
- Battery storage
- Fuel cells
- Microgrids
- Air-source unitary heat pumps / packaged terminal heat pumps (PTHP)
- Geothermal for heating/cooling and domestic hot water
- Exterior insulation and finishing systems (EIFS)
- Wastewater regeneration
- High-efficiency energy recovery ventilation (ERV)
- Power-over-ethernet (PoE) LED lighting
- Real Time Energy Managed (RTEM) BMS systems
- Building-wide leak detection systems



Arverne View

Sustainability Track Record



Arverne View: Before & After

Arverne View is an 11-building, 1,093-unit Mitchell-Lama property located in New York City's Far Rockaways, which was preserved as affordable housing by L+M Development Partners. L+M undertook a comprehensive retrofit project that resulted in \$650,000 in annual savings and a 29% reduction in source energy usage. Total project cost was \$6.7 million, and the project was partially funded through NYSERDA's MPP program.

- Installed Exterior Insulation and Finishing System (EIFS)
- Upgraded lighting to LEDs in apartment units, common areas, and throughout the exterior of the complex
- Overhauled ventilation system with Electronically Commutated Motor (ECM) fans and Energy Recovery Ventilators (ERVs)
- Installed condensing Domestic Hot Water (DHW) heater
- Installed booster pumps
- Installed low-flow faucet aerators and shower heads
- Installed ENERGY STAR® appliances in apartment units
- Installed 36 kW solar PV
- Installed 36 kW battery storage



Marcus Garvey Village

Sustainability Track Record



Marcus Garvey: 400 kW Solar PV

Marcus Garvey is a 32-building, 625-unit property located in Brownsville, Brooklyn. The property is in ConEd's Brooklyn-Queens Demand Management area. To help ConEd reduce electrical demand load, L+M deployed a first-of-its-kind microgrid integrating solar PV, storage and a fuel cell with intelligent software by Demand Energy to manage these distributed energy resources. A key aspect of the project is the ability of the batteries to ensure that the complex consumes all the energy it generates, without exporting to the grid. Another achievement is that the project is the first multi-family residential storage system using lithium-ion batteries in New York City.

- First-of-its-kind microgrid
- Energy storage: 300 kW / 1.2 MWh
- Renewables: 400 kW solar PV
- Fuel cell: 400 kW



Beach Green Dunes

Sustainability Track Record



Beach Green Dunes: 200 kW Solar PV

Beach Green Dunes Phase II is a mixed-use Passive House project located in the Edgemere neighborhood of Queens. The 8-story building measures approximately 121,000 GSF and includes approximately 50 accessory residential parking spaces on the ground floor along with approximately 2,495 SF dry flood proofed commercial space. The project has 127 rental apartments located on the second through the eighth floors affordable to households whose income does not exceed 100% of Area Median Income (AMI).

- Passive House certification
- Geothermal heating and cooling via water source heat pumps
- 200 kW solar PV
- Ultra-efficient energy recovery ventilation (ERV) system
- Building-wide leak detection system



Sendero Verde

Sustainability Track Record



Sendero Verde: Project Rendering

Sendero Verde will include nearly 700 units of permanently affordable housing in East Harlem. Certified to Passive House standards, the residential environment at Sendero Verde will offer healthy indoor air quality, superior thermal comfort, and high levels of energy efficiency, consuming only a small fraction of the energy used by conventional buildings to heat, cool and ventilate. Once built, the combined phases of Sendero Verde will be the largest multifamily residential Passive House in the United States.

- Passive House certification
- Air-source variable refrigerant flow (VRF) system for heating and cooling
- Ultra-efficient energy recovery ventilation (ERV) system
- Building-wide leak detection system
- Electrical consumption monitoring system
- Community gardens



Developing a roadmap to carbon neutrality

What is a carbon neutral building?



L+M's definition of a carbon neutral building is one that:

- Incorporates significant energy conservation measures including a high-performance building envelope and energy efficient building systems
- Electrifies building systems and loads and employs energy storage systems where feasible
- Utilizes smart metering and real time energy management systems to reduce peak demand
- Is staffed by proactive operating teams that work with utilities and other stakeholders to institute protocols that respond to grid conditions
- Purchases renewable electricity and carbon offsets as a last resort to account for minimal remaining fossil fuel loads that are difficult or costly to electrify

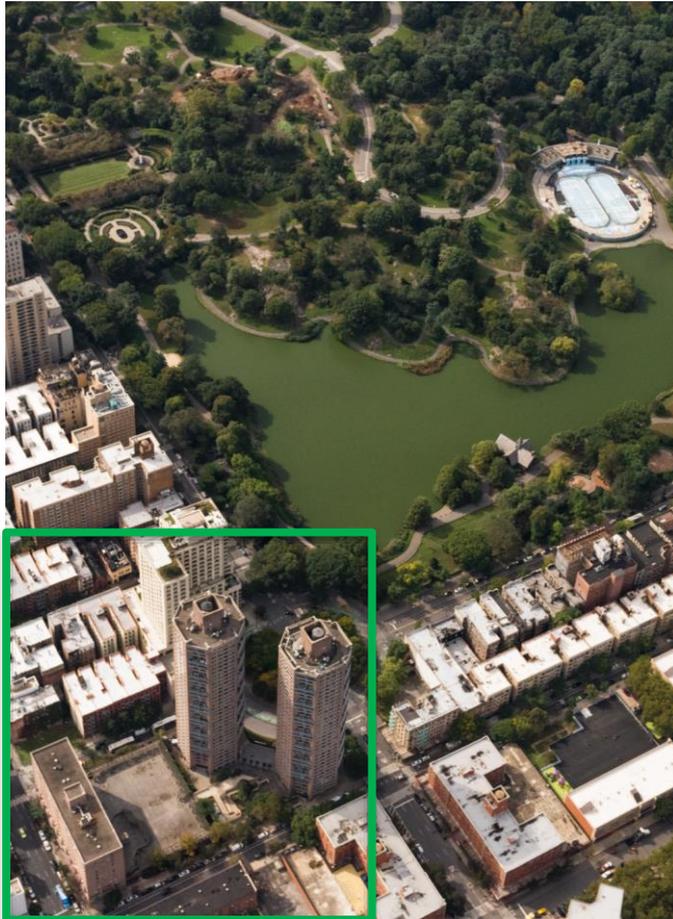
How does carbon neutrality fit within L+M's investment thesis?

- As a socially responsible developer, sustainability is central to L+M's mission to create green, high-quality affordable housing
- Since many of our projects are income-restricted, L+M is focused on reducing operating costs to allow for greater affordability
- Energy and water can comprise between 30-40% of operating costs on affordable projects and, therefore, minimizing these costs is critical to the viability of our investments
- As we aim to curtail the use of natural gas in our buildings, piloting and investing in new energy efficient technologies will become critical to both minimizing our energy spend and our carbon footprint
- Partnering with NYSERDA on developing a roadmap to carbon neutrality will benefit our investors, residents, our communities, and our environment, both now and in the future



Empire Building Challenge Commitment

The Heritage



The Heritage

L+M Development Partners and our partner, Invesco, are committed to decarbonizing The Heritage, a 3-building, 680,000-square foot mixed-use development with 600 mixed-income residential units, to a 0% emissions level by 2030. Completing this is expected to result in a site energy use intensity of 45 kBtu/SF, which represents a 54% reduction from the 2010 baseline.

When L+M acquired the property in 2019, The Heritage had exited Mitchell-Lama and was at risk of becoming fully market-rate. Upon acquisition, L+M preserved two-thirds of the units as affordable including a set aside of 134 units for formerly homeless households earning less than 70% of AMI. Over 250 households receive a rental subsidy through HUD's Section 8 program.

Key features will include:

- A high-performance building envelope achieved through an Exterior Insulated Façade System (EIFS).
- High-efficiency heat pumps to provide heating and cooling with unitized through-wall heat pumps (PHTPs)
- Cold-climate air-to-water heat pumps coupled with thermal storage to replace natural gas-fired domestic hot water heaters
- Air-source chiller/heater for non-profit community facility spaces
- Smart controls with real-time energy management to allow for building operations to be grid responsive



The Heritage

Background



The Heritage

The Heritage's two 34-story high-rise buildings overlook the northeast corner of Central Park, while an 11-story building comprised of 4- and 5-bedrooms units as well as four stories of community facility and commercial space housing the Northside Center for Child Development, the Boriken Bilingual Head Start program and a neighborhood grocery store.

- Year Built: 1974
- Heating: Electric resistance baseboard heaters
- Cooling: Window and sleeve AC units
- DHW: Natural gas-fired domestic hot water heaters
- Façade: Split-face brick, original insulation has fully deteriorated
- Baseline, current and projected Site EUI post-Empire Building Challenge implementation

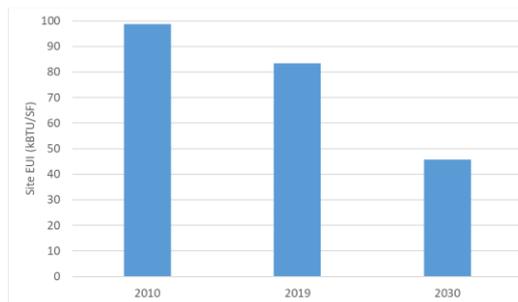


Figure 1. The Heritage: Baseline, Current, and Projected Site EUI



Empire Building Challenge and the NYSERDA Partnership

Public-Private partnerships will be critical to addressing climate change



L+M is excited to work NYSERDA and other best-in-class owner/operators to develop a roadmap to a carbon neutrality in New York State.

We hope to use Empire Building Challenge as a chance to pilot new technologies and create a scalable approach to reducing emissions throughout our portfolio.

Furthermore, L+M is committed to transparency and sharing retrofit project economics and case studies with the broader industry. L+M's pre-construction, engineering, and development teams actively share best practices with industry peers through the New York State Association for Affordable Housing (NYSFAFH), The Urban Land Institute (ULI) and other industry organizations.

L+M is also an active participant in conferences and stakeholder sessions with NYSERDA and is committed to working with state and local governments, equipment suppliers, contractors, and the broader real estate industry to decarbonize the built environment.



LM Development
Partners

