The State of the Stock: New York State's First Multifamily Building Inventory

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Agenda

- Background
- Study Details
- Lessons and Recommendations
- Conclusions

Background

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Importance of Multifamily

Retrofitting multifamily buildings is critical to achieving New York State's climate and equity goals.

Multifamily buildings represent **35%** of the New York housing stock with **2.6 million** dwelling units

The multifamily sector represents **22%** of energy use in New York

The multifamily sector has historically been **underrepresented** in energy data

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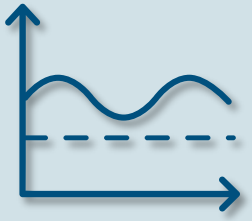
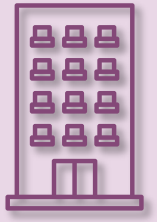
Study Overview

Statewide Multifamily Baseline Study, 2022–2025



The primary goal of the study was to **establish an accurate baseline of multifamily building and energy-use characteristics.**



The scope of the study was **multifamily buildings with 5+ units.**

Study Components

There were three study components:

Market Assessment

To understand the broader context in which multifamily energy systems operate.

Image Analysis Dashboard

To compile detailed attributes of buildings across New York State (based on aerial photographs).

Building Stock Assessment

To collect data through surveys and site visits, verifying details of building systems, infrastructure, and occupant behavior.

This presentation is focused on the design, execution, and findings of this component (the foundation for understanding energy use in New York's multifamily sector).

Study Design and Methodology

Copious amounts of data were collected for this study.

1,565 building representative surveys

135 occupant surveys

434 site visits

Sampling was stratified by:

- Building size
  - Low-rise (1-3 stories)
  - Mid-rise (4-7 stories)
  - High-rise (8+ stories)
- Ownership type
  - Affordable subsidized
  - Affordable unsubsidized
  - Co-ops and condominiums
  - Market-rate rentals
- Climate zone
  - 4A – New York City
  - 4B – Long Island and Westchester
  - 5 – Central and western New York
  - 6 – Northern New York
- DAC designation
  - Yes
  - No

Study Details

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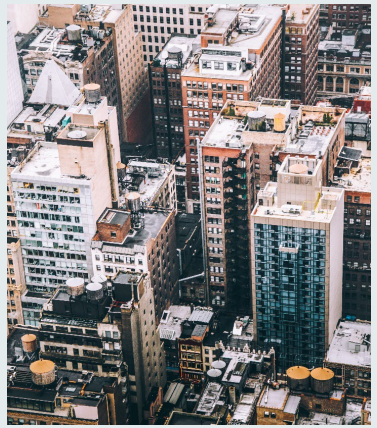
Innovative Data Techniques

Aerial image analysis of

650,000+

photos



Extensive data for

130,000+

multifamily buildings

Parcel-to-building GIS disaggregation:

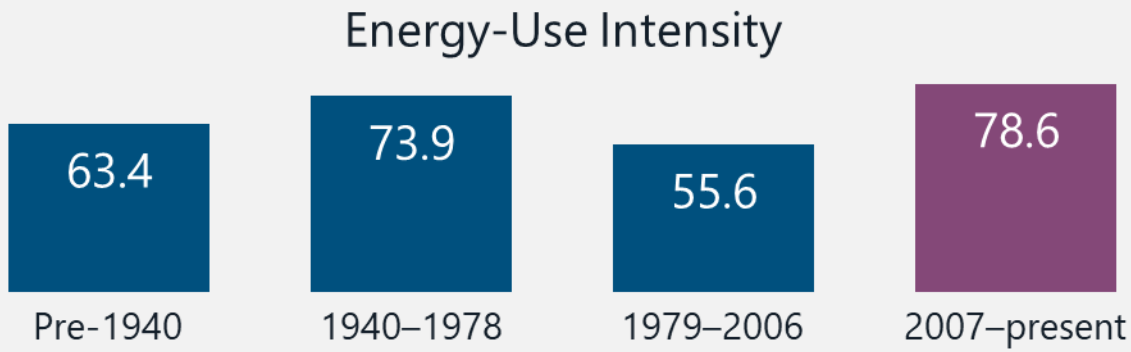
- height
- units
- addresses

Dynamic sampling & recruitment tactics

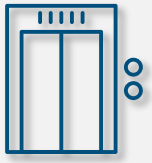
Findings on Energy-Use Intensity

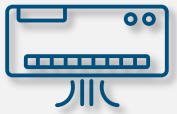
Energy-use intensity findings were unexpected.

Newer buildings (constructed after 2006) tend to have **higher total energy-use intensity** than **older buildings**



This higher EUI is driven by electricity use.

 Elevators

 Air conditioning

 Laundry

This finding challenges typical assumptions about building age and efficiency.

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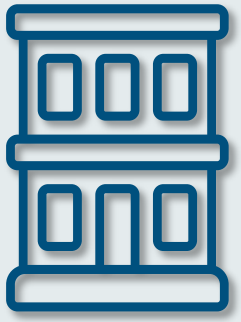
Building Typologies

Different building types may require different retrofit strategies, and thus different engagement approaches.

Low-rise buildings (1–3 stories)

Dominate the multifamily landscape outside of New York City

Often have larger dwelling units and more direct metering

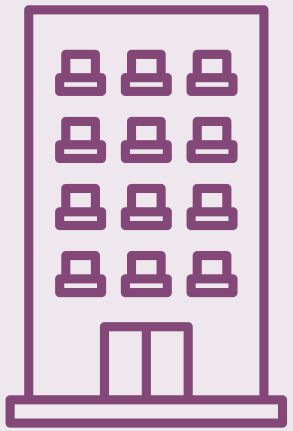


Mid- and high-rise buildings

Are more prevalent in urban centers

Mid-rise buildings have the highest incidence of roof issues, such as water leaks and structural sagging

High-rise buildings are more likely to have centralized HVAC systems and building-level metering

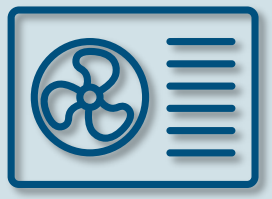


Heating and Cooling Systems

Heating

- **67%** of multifamily buildings statewide use **natural gas**
- **Central boilers are the most common** heating system, especially in older buildings
- **35%** of **newer buildings** use **electricity**, typically in the form of electric resistance heating or heat pumps

Cooling



- **62%** of multifamily units use **window air conditioning units**
- **Central air conditioning** and **ductless mini-split systems** are less common, but **more prevalent in co-ops, condos, and newer buildings**
- Only **2%** have **smart thermostats**

Lighting and Appliances

Efficiency varies widely between dwelling unit and building-level appliances.

Lighting

62% of common area lighting is **LED**

Many building still use compact fluorescent and incandescent bulbs

Lighting controls are often **manual**, with limited use of occupancy sensors or timers

Appliances

Many buildings still use outdated appliances

2/3 of **refrigerators** in dwelling units are **less than 10 years** old

Only half of buildings have **common laundry** facilities, and many use outdated equipment

Less than **20%** of **water heaters** are **ENERGY STAR®** certified

Lessons and Recommendations

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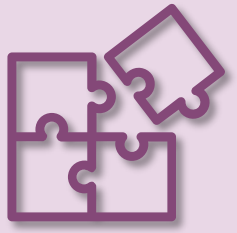
Lessons Learned

Successes

- **Stratified sampling framework** enabled statistically representative insights (regional and statewide)
- **Integration of aerial imagery and LiDAR data** was scalable and cost-effective
- **Standardized, tablet-based data collection tool** with built-in quality checks ensured consistency and completeness

Challenges



- **Difficulty recruiting building representatives** (outdated contact information, complex ownership structures, and low response rates)
  - Increased incentives for building representatives
  - Expanded outreach channels
  - Adapted recruitment strategies to focus on underrepresented segments
- **Discrepancies between survey and site visit data**
  - Used engineering judgment and benchmarking to determine the more reliable source

Implications for Programs

Statewide Multifamily Baseline Study findings have direct implications for program design, policy development, and future research.

Programs are more targeted and effective when based on actual building characteristics and energy use patterns

Program impacts and energy savings can more easily be measured once accurate baselines are established

Programs can **identify underserved segments** and **prioritize investments** in technologies and strategies with the greatest potential for **energy and emissions reductions**

Program can **remotely identify retrofit candidates** using the integration of image analysis

Policy Recommendations

Several policy changes are recommended based on the study findings.

Layered outreach and education around energy efficiency programs

Expand incentives for ENERGY STAR appliances, smart thermostats, and high-efficiency HVAC systems

Support electrification upgrades by addressing electrical service limitations in older buildings

Promote building automation systems and energy management tools

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Conclusions

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Conclusion

The Statewide Multifamily Baseline Study was the first comprehensive characterization of the New York multifamily housing sector.

The insights from this study are vital to ensuring that the **multifamily sector** is both a **priority** and a **beneficiary** of the clean energy transition.

The study dataset has created a **strong foundation for future programs and policies**, positioning New York to design and implement data-driven programs that deliver meaningful benefits to all residents.

The study findings:

- **Challenge assumptions** about building efficiency
- **Highlight disparities** across regions and communities
- **Reveal** significant **opportunities** for improvement
- Underscore the **importance of sustained investment** in data collection, stakeholder engagement, and technological innovation

Thank You

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