SUSTAINABLE CPC: A STUDY IN SAVINGS

High-Performance New Construction | Supportive Services

This case study examines data from a high-performance, new construction project in Brooklyn, NY. In addition to reviewing the scope of work and the building's consumption and utility costs, this case study compares the project site's energy use intensity (EUI) and estimated annual spend in comparison to a peer building dataset.

BUILDING PROFILE:
New Construction (2023)
Location: Brooklyn, NY, 11207
Size: 1 Building, 6 Stories, 58 Units, 143 Rooms, 44,555 Gross Square Feet
All utilities are included in the rent
Affordability: Affordable to individuals or households earning at or below 50-60% AMI (Area Median Income)

CPC Construction Loan: $11.8 million
Total Construction Loan: $21.9 million
Total Development Cost: $27.6 million

This project funded the construction of a 6-story high-performance building in Brooklyn, NY. The project features electric heating and cooling with green roof-style canopies, meeting and exceeding the Enterprise Green Communities criteria with NYC HPD overlay. 35 units have been designated for homeless adults with psychiatric disabilities and incomes at or below 60% AMI, 13 units will target low-income seniors with incomes at or below 50% AMI, and 9 units will target individuals with incomes at or below 60% AMI. Lastly, the project will provide supportive services for those with disabilities, ranging from case management, rehabilitative counseling, life skills training, and supported employment.

SCOPE OF WORK:

- Heating and cooling supplied through an electric VRF system (Daikin RXYQ and REYQ series)
- High efficiency, tankless gas-fired domestic hot water (DHW) heaters (Intellihot IN501 – 96% thermal efficiency)
  - DHW pipe insulation (R~4)
- Highly insulated envelope to minimize heat loss and air leakage
  - Fiberglass, air-sealed windows (U-0.25-.27 – fixed versus operable)
  - Predominant wall type is R-16.8, roof is R-34.8 (minimum)
- Low-flow, EPA WaterSense plumbing fixtures in bathrooms and kitchens
- ENERGY STAR-certified washing machines and kitchen appliances, including electric stoves
- High efficiency LED lighting throughout
- Energy Recovery Ventilation (ERV) for fresh air intake and to minimize energy loss in apartments and common areas
- Recycling bins in units and common areas with instructions for building managers and tenants
- Building canopies designed as green roofs with hardy sedum planting; rear court is landscaped with native herbs

SAVINGS SNAPSHOT:

This table summarizes building performance and utility costs post-construction from January - December 2024.

Utility	Subject Property Annual Consumption (Unit/Apartment)	Subject Property Monthly Consumption (Unit/Apartment)	Subject Property Annual Cost ($/unit)	Subject Property Monthly Cost ($/unit)
Electricity (kWh)	6,662	555	$1,599	$133
Natural Gas (therms)	136	11	$195	$16
Water & Sewer (kGal)	26	2	$294	$25
Total	-	-	$2,088	$174

ENERGY USE INTENSITY PEER COMPARISON:

This table compares the EUI and estimated annual spend at this project site against comparable peers in a 2,000+ multifamily properties in NYC 2025 whole-building dataset.

Subject Property Actual EUI (kBTU/sqft/year)	Peer EUI (kBTU/sqft/year)	Estimated Spend versus Peer ($/year)	Energy Use Compared to Peer
55	87	($101,364)	59%

TAKEAWAYS:

This building provides valuable insights into the performance and cost implications of high-performance new construction in NYC. It confirms the general hypothesis - it is expensive to operate an electrically heated building. However, electrification contributes to the value of this building in other ways, from improving tenant comfort and indoor air quality, to aiding compliance with current and future regulations.

- Electricity costs are high: This property averages 555 kWh per dwelling unit/month, translating to approximately $145 more per dwelling unit/month compared to peer buildings.
  - Electricity per unit was nearly 5x more expensive than natural gas in Brooklyn in 2024. The average electricity cost was ~27-31 ¢/kWh, while natural gas cost ~$1.54-1.93/therm. When equalized, this amounts to ~$88/MMBtu for electricity vs. ~$18/MMBtu for natural gas.
  - Electricity is particularly expensive in NYC: Brooklyn residents paid significantly more than the U.S. national average of ~16-18 ¢/kWh in 2024.
  - This underscores the urgent need to close this price gap through expanding grid capacity, strengthening transmission infrastructure, accelerating renewable integration, and continuing to deploy high efficiency heating technologies.
- At this building, all utilities are owner-paid: Therefore, this scope of work and higher operating costs are not posing a threat to tenant affordability.
- Controls: Tenants can set the temperature in their apartment within a range that is pre-set by management for both heating and cooling seasons to limit incorrect or overuse.
- Future opportunities for cost reduction: Installing solar panels, participating in community solar, or incorporating other renewable energy sources can significantly offset electricity costs. Integrating battery storage and/or demand management could further optimize energy use and provide resiliency benefits.
- Trade-offs of electrification: While electricity costs are generally higher than natural gas per BTU, electrification delivers important benefits to the buildings we live and work in: improved thermal comfort and indoor air quality (reducing on-site combustion and related pollutants), lower GHG emissions, reduced fire risk, quieter operation, and the means to provide tenants with both heating and cooling. Decarbonizing also enables compliance with current and future regulations – here, this scope of work allows for Local Law 97 compliance in NYC.

As more high-performance projects are built and monitored, we hope new learnings will refine the process and drive down operating costs. With little influence on the cost of the commodity, we can instead focus on installing energy efficient systems and relying on highly insulated building envelopes to minimize heat loss and air leakage. In turn, this minimizes consumption while also enhancing and improving both long-term health and comfort.