

Case Study

Out with the old: Window heat pumps outperform radiators in postwar rental

Faced with an inefficient two-pipe steam heating system, this building chose to remove existing radiators and install **window heat pumps** for both heating and cooling. Different models of window heat pumps were installed across two wings of this complex. Building heating energy use fell by an average of 87 percent.



Retrofit snapshot

Before

- 2-pipe steam heating system, cast-iron radiators
- Window AC units
- Gas-fired boiler

After

- Window heat pumps from two leading manufacturers
- **87 percent reduction** in energy used for heating

What we heard

"[The room heat pump] is very useful and keeps the space fresh and comfortable."



Learn more and see other room heat pump case studies

The building

Built: 1949

Size (SF): 10,500 per wing of building

SF/Unit: 875

Units (#): 12 per wing of building

Type of occupancy: Rental

Pre-retrofit systems:

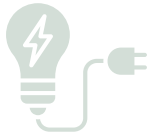
Heating distribution: 2-pipe steam

Heating terminal units: Cast iron radiators

Heating fuel: Gas

Cooling system: Window AC





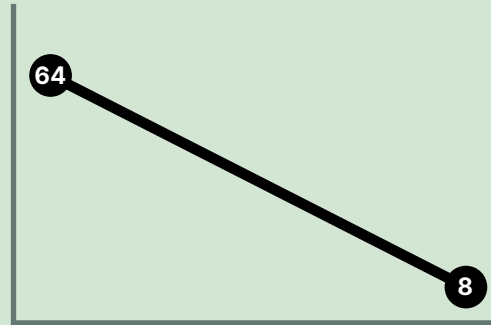
Energy use impacts

Cutting space heating energy is the fastest way for buildings to reduce energy use since space heating typically accounts for more than half of the building's energy use.

87%
Heating EUI
reduction

Pre-retrofit EUI: **64** (kbtu/sf/yr)

Post-retrofit EUI: **8** (kbtu/sf/yr)



Retrofit costs

Window heat pumps are likely the lowest-cost way for a building to electrify space heating. Installation costs can vary based on readiness: electrical work, removal of existing equipment, and use of in-house labor all play a role.

Heat pumps
\$6,730
per apartment

Labor and other costs

\$8,690
per apartment

Category	Cost
Heat pump	\$6,730
Install outlet & heat pump, remove radiator, paint/patch	\$5,900
Other soft costs	\$2,790

Total retrofit cost
\$15,420
per apartment

Notes:

This retrofit took place in Fall 2023.

The heating energy analysis is based on data through Spring 2026. Heating EUI savings will be updated as new data becomes available.

Two different heat pump manufacturers were used for the project. Specifically, **Gradient** window heat pumps were installed in one building, and **Midea** window heat pumps were installed in another building.

Retrofit cost is for a two-bedroom apartment with three window heat pump units.

