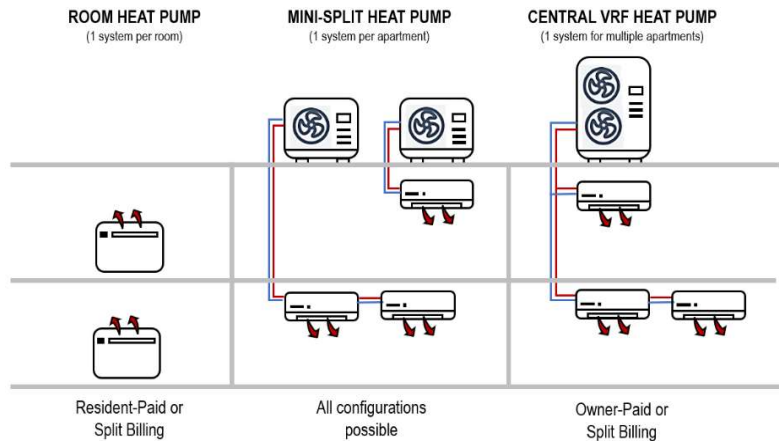


Selecting a heat pump

Choosing the right heat pump systems is complicated. Heat pump technology is 2-3 times more efficient and significantly less carbon intensive than gas or oil heating, but heat pumps are complicated and most heat pumps provide both heating and cooling, making billing complex –especially in NYC affordable housing

Heat Pump Types: The diagram on the right illustrates the different heat pump typologies used in the HPD Retrofit Electrification Pilot, and the different ways they can be metered/ billed:

***When does HPD allow resident-paid heating?** Per [HPD’s Electric Heating Policy](#), resident-paid heating is allowed only with explicit permission of HPD and project must comply with the strict Terms and Conditions of [HPD’s Resident-Paid Heat Pump Policy](#), which include protections for residents that are written into the regulatory agreement.



The matrix below will help teams decide which system and which strategy makes the most sense

Heat Pump Type	Building/ Apartment Configuration	Metering & Billing Strategy	Key Considerations	Installation Cost	Efficiency	Refrigerant Leak Risk
Packaged Terminal Heat Pumps (PTHPs/ Room Heat Pumps)	Ideal for buildings with PTAC or AC sleeves, because each heat pump requires penetration through façade (although new window adaptors are becoming more widely available). Most cost effective for 0-2BR apartments and/ or as a PTAC replacement.	Dual-wired for owner-paid heating and resident-paid cooling	Additional cost if wall penetrations/ window adaptors are required. Dual wiring also adds some cost.	\$\$\$\$	*****	Low
		Wired to apartment meter, resident-paid heating & cooling*	Additional cost if wall penetrations/ window adaptors are required. Only allowed for coops or where heating is already paid by rent-stabilized tenants	\$\$\$/\$\$\$\$	*****	Low
Mini-split system	Where roof or outdoor space is available and building can accommodate limited refrigerant pipe lengths. Typically the most cost effective solution for large apartments	Wired to house meter, with cooling paid by owner	Owner must underwrite cooling into the M&O budget. Residents have less incentive to conserve energy.	\$\$\$\$	****	Medium
		Wired to house meter, with cooling sub-metered and billed to resident	Submetering cooling requires additional equipment and a 3rd party for billing, and collecting on cooling can be challenging.	\$\$\$\$	****	Medium
		Wired to apartment meter, resident-paid heating & cooling*	Only allowed for coops or where heating is already paid by rent-stabilized tenants	\$\$\$	****	Medium
Central VRF	Buildings where no other solutions are available	Wired to house meter, with cooling paid by owner	Central VRF is more costly to install and maintain, and is less efficient than other systems. Issues in one apartment can cause full system shut-down. Owner must underwrite cooling into the M&O budget.	\$\$\$\$\$	***	High
		Wired to house meter, with cooling submetered and billed to resident	Same as above, plus submetering cooling requires additional equipment and a 3rd party for billing, and collecting on cooling can be challenging.	\$\$\$\$\$	***	High

*Resident-paid heating is only allowed with prior HPD permission. Shifting costs from owner to tenants in rent-stabilized or rent-controlled apartments is not allowed. All projects must comply with HPD’s Electric Heating Policy.

What are the pros and cons of each billing model?

BILLING	PROS	CONS
RESIDENT-PAID UTILITIES	<ul style="list-style-type: none"> Residents can conserve energy and pocket the savings Equipment and installation is simpler & cheaper Removes burden of building collecting the fees for cooling 	<ul style="list-style-type: none"> Con Ed can turn off electricity <u>and</u> heating for non-payment Utility protection programs like LIHEAP are reserved for very low-income customers Less incentive for owner to design and maintain the system for efficiency HPD/ HCR approval is required, which can be cumbersome
SPLIT BILLING: Owner paid heat + Tenant paid cooling	<ul style="list-style-type: none"> This is "business as usual" for HPD Shares the risk/ rewards of costs and savings between building and resident 	<ul style="list-style-type: none"> Higher up-front costs for dual-wiring or sub-metering equipment For sub-metered systems, it can be challenging and costly to collect fees for cooling
BUILDING-PAID UTILITIES	<ul style="list-style-type: none"> Protects vulnerable residents Building is most likely to design & maintain system for efficiency 	<ul style="list-style-type: none"> Reduced likelihood of residents trying to conserve energy (in both summer and winter)

HPD Development Projects implementing Resident-Paid Heat must comply with the following conditions:

- HPD Permission is Required: Resident-paid heat is only allowed with permission of HPD Sustainability Office and HPD Program. For retrofits, only certain projects in the Retrofit Electrification Pilot may participate.
- Vulnerable Populations: Resident-paid heat is not allowed on projects with a large share of vulnerable residents, including senior or supportive housing or projects with a large share of formerly homeless or ELI/VLI units. Some HPD New Construction & Preservation Programs do not allow resident-paid heating.
- Retrofit Projects with Rent Stabilization: Only projects that already have tenant-paid heating or are converting to co-ops (e.g., through HPD’s ANCP program) may include resident-paid heat.
 - Must be rent restructuring and initiate HPD’s standard process for a modification of service
 - Reduce rents by the amount of the current and applicable Utility Allowance
 - Not use Major Capital Improvements (MCIs) for the project. HPD will notify HCR/ORR about any project that is converting from owner-paid to resident-paid heating to ensure this does not occur.
- Rental Assistance Vouchers: Owners of rental properties are required to assume and pay the electric utility bills for households using rental assistance vouchers that do not factor in the cost of utilities (e.g. City FHEPS) and will be allowed to use money from the social service reserve for these expenses.
- HPD’s Regulatory Agreement will require compliance with HPD’s Resident/ Shareholder-Paid Heating Guidelines for Owner/Coop Boards. See Appendix A.

- Projects will be underwritten using the appropriate utility allowance for electric heat pumps, and the project's M&O budget for "heating" will be reduced to account for in-unit heating, but ensuring that budget covers hot water heating and common area electric where applicable.

Appendix A: HPD’s Resident-Paid Heat Pump Guidelines for Owner/Coop Boards. These Guidelines must be included in the HPD Regulatory Agreement. The key requirements are summarized below. *Owners and developers should request the full HPD Guidelines from their Project Manager and/or HPD attorney:*

- 1) Owners/ Co-op boards must implement the following Operations & Maintenance protocols:
 - a) Owners/Co-op boards must own and maintain systems as required to ensure system efficiency.
 - b) Owners/Co-op boards must respond to complaints of high bills or system issues promptly and conduct repairs, and/or provide guidance on system use as needed.
 - c) Owners will be required to keep a record of and inform HPD if there are resident complaints, shutoffs or other issues and share with HPD upon request.
 - d) Provide in-person demonstration of in-unit equipment & thermostat and, if possible, a web video tutorial at move-in and resident turnover.
 - e) Provide building staff training to ensure system is efficiently operated.
- 2) Owners must use an HPD Lease Rider and coop boards must use HPD Shareholder Documents that inform residents of their responsibility to pay for heating. Records of these documents must be retained by owners and their property managers. The document will note that:
 - a) *Resident/shareholder is responsible to pay for heat; owner or co-op board for maintenance.*
 - b) *In addition to rent, utilities are accounted for when determining household’s ability to afford the unit.*
 - c) *Occupant must give owner/ coop board access as stated in the rider to change filters or service the unit(s).*
 - d) *Resident/shareholder must acknowledge receipt of HPD Resource Packets.*
- 3) Owners/Co-op boards must provide new occupants with a Resource Packet including:
 - a) Information and/or flyers including energy saving tips, equipment best practices, thermostat settings and energy assistance program referrals
 - b) Contact information for system questions and equipment issues
 - c) Annual referrals to energy assistance programs (e.g. Con-Ed Level Payment program, Con Ed Senior Services, HEAP programs, etc.)
 - d) Information about Community Solar, which can enable residents to save up to 10% on utility bills. This information is available through HPD’s Solar Where Feasible Program.
- 4) Utility Billing:

- a) Owners/Co-op boards must agree to be named a 3rd party on resident/shareholder bills, if such a request is made.
- b) Owners of rental properties are required to assume and pay the electric utility bills for households using rental assistance vouchers that do not factor in the cost of utilities (e.g. City FHEPS) and will be allowed to use money from the social service reserve for these expenses.