



NYCHA Capital Projects Fact Sheet: HEAT PUMPS & INFRARED HEATING PANELS

1. Project Overview

- As is typical in multifamily buildings, two thirds of NYCHA's energy consumption is devoted to providing heat and domestic hot water (DHW). Most of NYCHA's portfolio is currently served by campus-scale steam heating systems that must run year-round in order to make DHW. Conversion to building-scale hydronic (heating hot water distribution) and the installation of heat pumps, where appropriate, will radically reduce energy consumption and greenhouse gas emissions.
- Air to water heat pumps are a system of heating domestic hot water systems. Infrared heating panels provide direct warmth without heating the surrounding air. When combined, these two technologies will electrify domestic hot water and heat using clean energy and producing minimal harmful emissions such as carbon dioxide.

2. Key Terms

- Air to Water Heat Pump: A type of heat pump that transfers heat from air to water. A heat pump is able to draw air from the outdoors, even in colder weather. Air contains heat energy even when it feels cold.
- Electrification: The replacement of fossil-fuel energy use with low-carbon electricity.
- Heat Distribution: The circulation of heated water throughout a building to the domestic hot water system (sinks, showers, etc.)
- Infrared Heat Panels: A heating system that retains and radiates heat from large, flat panes of aluminum, glass or other material.
- Expansion Valve: A component of a heat pump that controls the flow of the refrigerant.

3. Why is this capital project needed? Why is it important?

- Local Law 97 of 2019 (LL97) directs NYCHA to "make efforts to reduce greenhouse gas emissions by 40% by the year 2030 and 80% by the year 2050." Achieving this goal will ultimately require NYCHA to meet the majority of its buildings' energy needs through electrification.
- In 2022, Governor Kathy Hochul and Mayor Eric Adams announced a \$70 million initial investment to decarbonize NYCHA buildings as part of the *Clean Heat for All Challenge*.
- A collaboration between the New York Power Authority (NYPA), and the New York State Energy Research and Development Authority (NYSERDA), *Clean Heat for All* is designed to spur innovation and growth by challenging heating and cooling equipment vendors to develop new electrification products for NYCHA including heat pump technology and other creative technologies.

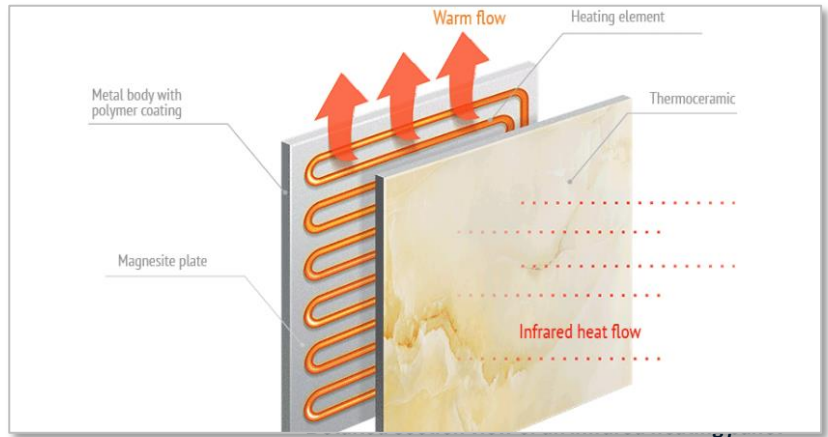


Triple-pane casement windows with new cold climate window heat pumps at Woodside Houses developed through the Clean Heat for All program

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4. Scope of Work Details

- Heat pump technology provides cooling and heating from a single unit by moving heat between the indoor and outdoor spaces depending on the season.
- The process is achieved through a refrigeration cycle up to four times more efficient than traditional heating systems such as boilers, which rely on combustion of fossil fuels to produce heat.
- Heat Exchanger:** A component of a heat pump that extracts heat from an outside air and delivers it to a domestic hot water system.
- Heat Release:** After transferring heat to water, the refrigerant condenses into a liquid state and travels back through the expansion valve.



5. Construction Trades & Other Roles Involved

| Type | Possible Roles |
|-----------|---|
| Trade | <ul style="list-style-type: none"> Electrician Laborer (including Flaggers, Demolition Workers) |
| Non-Trade | <ul style="list-style-type: none"> Admin Timekeeper Supervisor |

6. Typical Project Timeline

- Heat pumps installed in an apartment through a wall take 3-4 days work time. Heat pumps installed in an apartment through a window take 1-2 days work time.

7. What to Expect During Construction

- Disruption:** There may be noise from drilling and mounting units, as well as limited access to certain areas while work is in progress.
- Seasonal Considerations:** Excavation and pipe installation for heat pump infrastructure cannot be performed in rain or snow, potentially leading to scheduling delays.

8. Mitigating Construction Impacts

- Staging Concerns:** Contractors will establish staging areas for temporary heating equipment, mobile offices, and storage for installation materials. These areas will be pre-approved and coordinated with Property Management to minimize disruption to residents.



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- Temporary Equipment: During the transition, temporary heating solutions may be provided. This could include portable heaters or other temporary measures for residents.
- Pest Management: Excavation may disrupt existing rodent burrows, increasing the risk of pests in surrounding areas. Contractors will coordinate with pest control services as needed.