BetterBuilt^NW

ADVANCED HEAT PUMPS: COLD CLIMATE CAPABLE THAT MINIMIZE SUPPLEMENTAL HEAT

When it comes to selecting a heat pump for residential applications, not all systems are created equal. Variable speed heat pumps typically deliver comfort with greater efficiency; by choosing a cold climate capable model while also minimizing supplemental heat, the system can deliver even more significant savings.

WHAT IS IT?

A cold climate capable heat pump combines superior cold climate performance and controls that limit unnecessary use of supplemental heating equipment, enables load flex requests, and includes additional default settings that increase customer savings. These heat pumps work in any climate and are beneficial in areas where the average outdoor air temperatures in winter are frequently below 5°F.

Contractors often oversize heat pumps or unnecessarily rely on supplemental heating equipment when designing the system. This can lead to load spikes during cold snaps, setback recovery, and defrost cycles. When advanced controls are paired with proper sizing and limiting the installation of electric resistance supplemental heat, this results in greater energy savings for consumers and utilities.

Cold Climate Capable Heat Pump Specification (ENERGY STAR®):

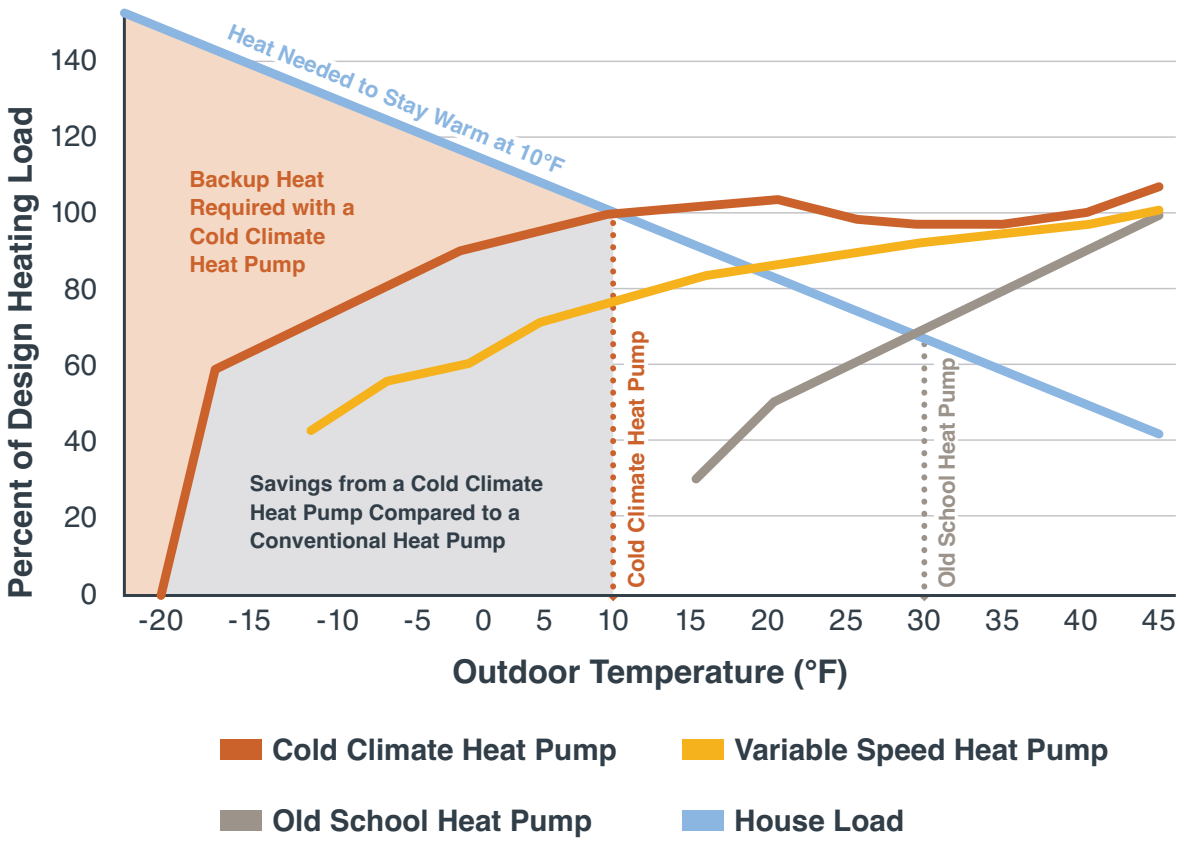
- COP@ 5°F ≥ 1.75
- HSPF2 ≥ 8.5
- 5°F Cap Ratio ≥ 70%
- Meets AHRI 210/240 CVP

Minimizing Supplemental Heat Specification:

- Minimize the installation of electric resistance heating or use a staged energization approach. This will require properly sized and installed heat pump systems.
  - Use cold climate heat pumps that can meet the load at low temperature conditions
- Use programmable controllers that minimize the use of electric resistance heating. Look for controllers that:
  - Have a ≥ 3.0° F droop control or maximum indoor temperature offset (MITO)
  - Intelligent setback recovery that focuses on using the heat pump
  - Intelligent dual fuel switchover/crossover setpoint
  - Load flex capable, per AHRI 1380

COMPARING HEAT PUMP CAPACITY AND HOUSE HEATING NEED

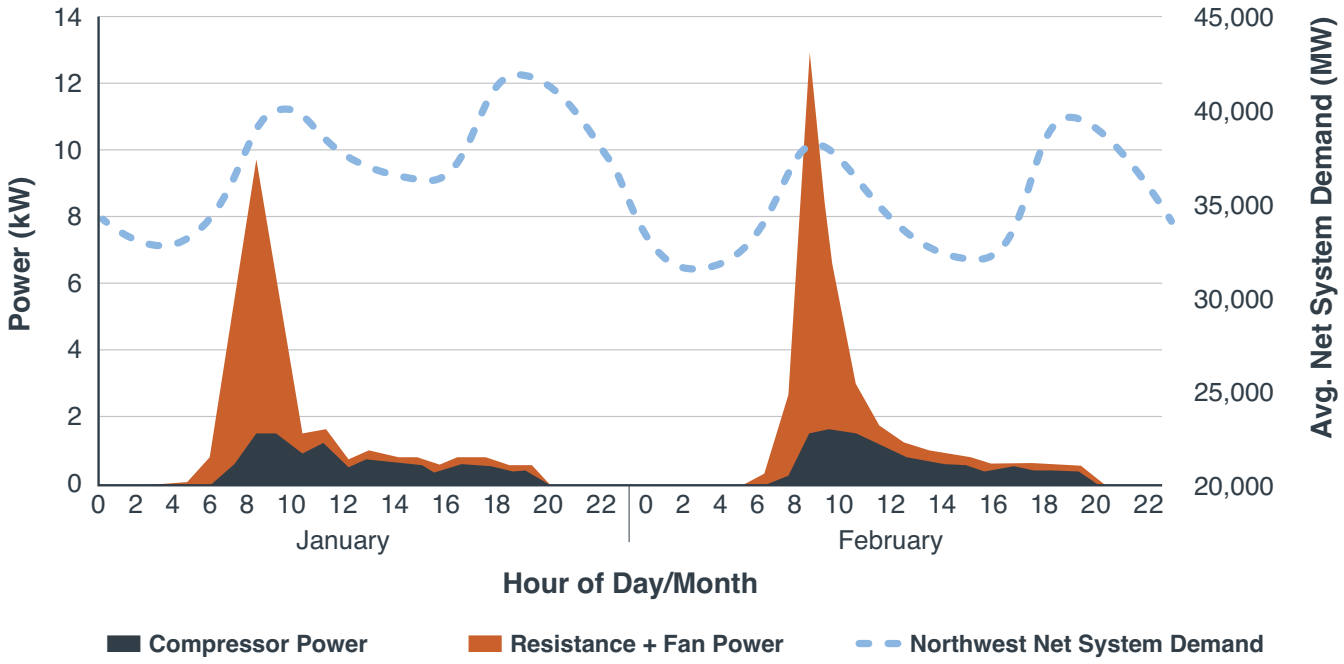
Compared to older heat pump models, variable speed cold climate heat pumps offer the greatest potential savings in the most extreme temperatures when compared with standard or older models.



Source: Levelized Cost Tool (LCTool), Northwest Energy Efficiency Alliance.
Graph for illustrative purposes only.

SETBACK RECOVERY IMPACTS SYSTEM PEAKS

Reliance on supplemental heating equipment can create significant spikes in energy demand when setback recovery relies on electric resistance during the heating season. Minimizing the use of supplemental heat and relying more on advanced heat pumps, including cold climate capable models, can directly reduce potential strain on the grid.



Source: Bonneville Power Administration.

To find more resources, visit **BetterBuiltNW.com/advanced-heat-pumps**

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