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The Benefits of Using Hybrid Heating Systems

In the Northeast, where Winters are often harsh and temperatures can plummet below freezing, efficient and reliable heating systems are essential. As energy costs fluctuate, many homeowners are seeking viable heating solutions that strike a balance between cost, efficiency and sustainability.

One increasingly popular option is the hybrid heating system, which combines air source heat pumps with existing oil/gas furnaces or boilers. This approach leverages the strengths of both technologies to

create a flexible and efficient heating solution. There are several key benefits to adopting a hybrid heating system in the Northeast.

Hybrid systems can optimize energy efficiency by automatically switching between the air source heat pump (ASHP) and the fossil fuel furnace or boiler based on outdoor temperature. During milder Winter days, the ASHP efficiently extracts heat from the outside air, reducing energy consumption.

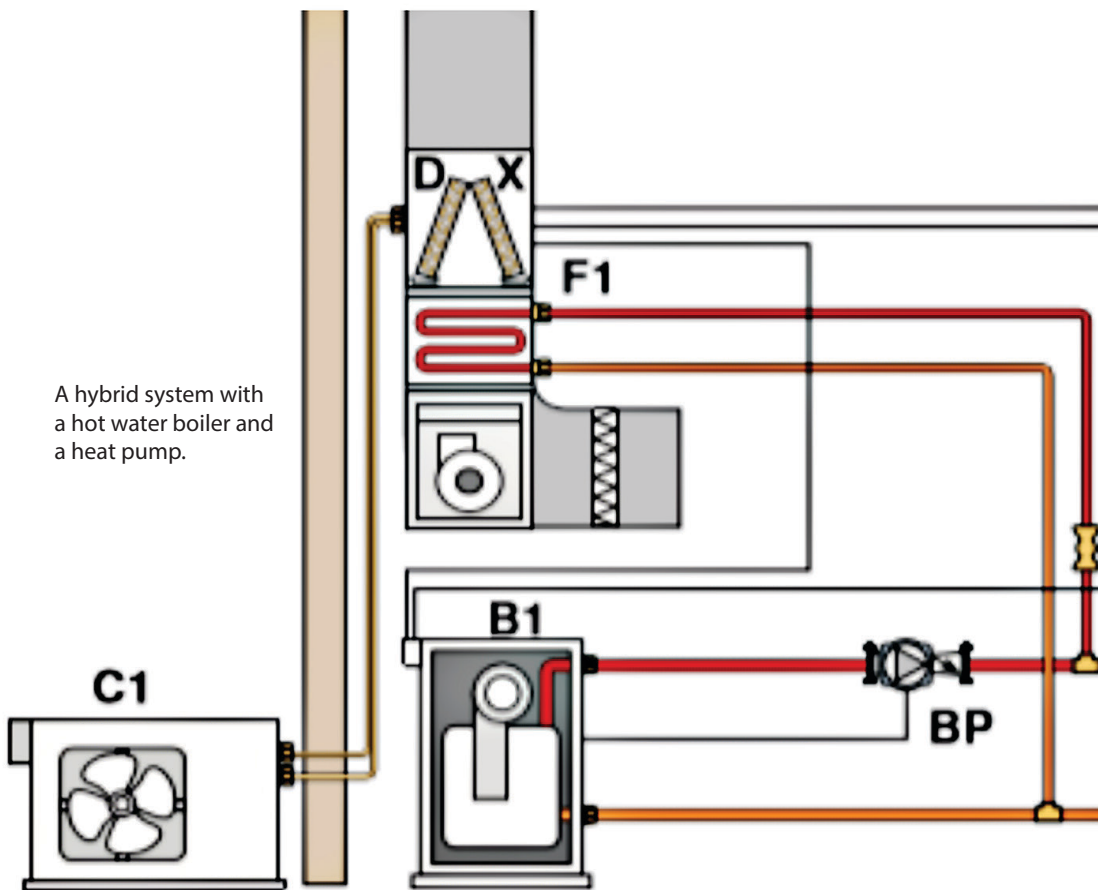
On colder days, when the ASHPs may struggle to maintain efficiency,

the system transitions automatically back to the fossil fuel furnace or boiler, maintaining reliable and effective heating. This ability to adapt to changing conditions maximizes energy efficiency year-round, which can help reduce utility bills for the homeowners.

One of the benefits of a hybrid system is its potential for cost savings. Air source heat pumps are highly efficient during moderate outdoor temperature conditions, often operating at a coefficient of performance (COP) of 2–3 or even higher. This

means the heat pump can deliver 2–3 units of heat for every unit of electricity consumed. By using these ASHPs for most of the heating season, homeowners can reduce the amount of time they operate their fossil fuel appliances.

For some homeowners, reducing their environmental footprint is a big draw in integrating ASHPs with their existing furnace or boiler to create a hybrid heating system. ASHPs are powered by electricity, which can be sourced from renewable energy. By relying on the heat pump for a large portion of the heating season, homeowners can lower their potential greenhouse gas emissions (GHG). For homeowners interested in a lower their carbon footprint, the hybrid system offers a practical way



A hybrid system with a hot water boiler and a heat pump.

Hybrid systems can optimize energy efficiency by automatically switching between the air source heat pump (ASHP) and the fossil fuel furnace or boiler based on outdoor temperature.

of achieving that without sacrificing comfort and reliability.

These hybrid systems are designed to provide consistent and reliable heating, regardless of the outdoor conditions.

In the Northeast, where temperatures can vary widely, this adaptability is valuable. The heat pump does a good job of maintaining a steady, even heat during milder conditions, while the fossil fuel furnace or boiler delivers the higher output heating needed for the colder temperatures. This ensures the homeowners remain comfortable throughout the Winter, even during those cold snaps.

These systems also provide the homeowner with more control over their energy usage. With rising energy prices, the ability to switch between electricity and fossil fuels offer flexibility. Smart controls and programmable thermostats allow the system to choose the most cost-effective and efficient heat source based on current conditions.

By dividing the heating workload between the air source heat pump and the furnace or boiler, the hybrid system reduces wear and tear on both components. This can lead to longer equipment lifespans and lower maintenance costs over time. For example, because the boiler or furnace will only operate during the coldest days, its operating hours are reduced—which can extend its service life.

Also, the heat pump will not be operating during extreme cold conditions, which can help preserve its performance and durability.

One of the most significant benefits of a hybrid heating system is its compatibility with existing heating infrastructure. Many homes in the Northeast already have a furnace or boiler installed in place, so integrating an air source heat pump into the system can be straightforward. This allows the transition to a hybrid system to be more affordable and less disruptive compared to a complete heating system replacement. Additionally, many heat pumps can be paired with a home's existing ductwork, further simplifying the installation process.

As many States in the Northeast are pushing for electrification and reducing their carbon footprint, using hybrid heating systems aligns with some of these policy goals. In-

centives and rebates for installing energy-efficient heat pumps are available in most Northeast States, making hybrid systems more accessible and affordable for homeowners.

By optimizing energy efficiency, reducing costs, potentially lowering the impact on the environment and providing reliable comfort, hybrid heating systems address the unique challenges of heating homes in a cold climate region. With the advantages of flexibility, extended equipment lifespan and compatibility with existing heating systems, hybrid systems represent a smart heating solution. As the Northeast continues to pursue these technologies, hybrid heating systems will play an important role in the region.

If you have any questions or comments, e-mail me at gcarey@fiainc.com, call me at (800) 423-7187 or follow me on Twitter at [@Ask_Gcarey](https://twitter.com/Ask_Gcarey).

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A hybrid system with a warm air furnace and a heat pump.

