Heat Pumps and Health

How Heat Pumps Work

Heat pumps work by expanding and contracting fluid to move heat into or out of your home. This means heat pumps can both heat and cool your home. Heat pumps use outside coils to exchange heat with the air, water, or ground. Air source is the easiest to install but ground source is the most efficient.¹

Induction stoves are very efficient and another way to keep pollution out of your home.

Heat Pumps can operate in very cold temperatures (suitable for the North East US).³

Heat Pumps can also be installed to heat/cool your entire home, or small modular units can be used for just certain rooms.

Why Gas is a Bad Option

Natural Gas is a major contributor to climate change, and fracking for gas causes serious environmental and health problems.⁶

Gas furnaces, stoves and water heaters create dangerous combustion chemicals. Improper installation or damage to furnace and water heater chimneys can vent these chemicals directly into your home. Gas stoves often have no external ventilation.

These include:

- NO₂
- PM₂.₅
- CO₂
- VOCs
- CO

These chemicals are associated with or shown to cause numerous problems in people, including: asthma, decreased lung function, nausea, nerve damage, cancer, fatigue, headaches, dizziness, heart attacks, and stroke.⁷,⁸,⁹,¹⁰,¹¹

Gas stoves release dangerous indoor pollutants, increasing asthma up to 42%.¹²

The Truth About Heat Pumps:

1. "Heat pumps are too expensive." Upfront costs can be higher in existing homes, but this is not always the case for new homes. Also heat pumps cost about 50% less to heat your home.²

2. "Pennsylvania is too cold." Modern heat pumps are far more efficient than decades ago. Many air source heat pumps can produce heat down to 5°F and some can keep working down to -7°F. Air source heat pumps are used in Canada. Ground and water source heat pumps can operate at even colder outdoor temperatures by utilizing more stable ground/water temps.¹,³

3. "Heat Pumps need air ducts." Heat pumps can use air ducts, but they don’t need them. Heat pumps can also use existing water radiators, or mini-splits. Mini-splits are modular and can be an easy way to add heating/cooling to drafty rooms or home additions not well served by existing systems.⁴

4. "A heat pump uses electricity from the grid and that's just as dirty as burning gas in my house." There used to be some truth to this. But the US electric grid is cleaner than ever and moving in that direction fast.⁵
In many older homes, gas stoves are not vented to the outdoors so the pollution from an open gas flame remains inside. Even in homes with vents, this is often vented at street level. A meta-analysis of 42 studies found children in homes with gas stoves had a 42% increased risk of asthma. Another study showed that without proper ventilation NO₂ levels could far exceed acceptable outdoor levels. Sources: