

Commercial Gas Heat Pumps

Solutions for Increased Efficiency, Lower Operational Costs and Lower Emissions



How do gas heat pumps work?

Commercial gas heat pump (GHP) technologies are highly energy-efficient alternatives to traditional space heating, and water heating equipment. In space heating mode, GHPs absorb heat from the outside air and transfers it inside, utilizing the combustion of natural gas to drive the heat pump system. GHPs have an advantage as they can capture heat from the combustion process to improve overall efficiency and work much better in colder climates than their electric counterparts.

Two types of gas heat pumps available for commercial use

Gas-engine driven heat pumps supply heating to commercial buildings. They use a gas engine to power a compressor, which drives the refrigeration cycle. In heating mode, the refrigerant absorbs heat from the outside air, and then is then compressed to a higher temperature and pressure. This hot, high-pressure refrigerant then releases its heat indoors, warming the space, before returning to its lower-pressure state to repeat the cycle.

Gas absorption heat pumps provide heating and domestic hot water. These GHPs use heat from burning natural gas to drive an absorption cycle using ammonia as a refrigerant—which has zero global warming potential (GWP). This differs from electric heat pumps, which use hydrofluorocarbons (HFCs). HFCs have a GWP of 1,400 or higher. In heating mode, the heat from natural gas plus the additional heat captured by ammonia is transferred to a water-glycol mix. The sealed ammonia system remains outside while the water-glycol loop delivers the heat indoors.

Commercial gas absorption heat pumps are ideal for commercial buildings such as schools, retirement communities, office buildings, multi-family unit buildings, hotels and more.



Why gas heat pumps?

Lower costs. GHPs offer lower operating costs and reduced energy costs compared to existing gas heating equipment and electric heat pumps for climates like Chicago.

Environmentally friendly. GHPs do not have harmful fluorocarbons or nitrogen oxide (NOx) emissions. They also have a smaller carbon footprint compared to electricity generation needed to power traditional electric HVAC systems.

Easy conversion. They are easy to convert to low and no-carbon fuels such as renewable natural gas and hydrogen.

Success story

Arleta Manor, Toronto, Canada

At a social housing complex for older adults in Toronto, two GHP units help meet the building's hot water needs more efficiently and effectively. Condensing boilers provide additional heating required to meet the temperature setpoint.

- **System Efficiency:** 114%-125%
- **Annual Carbon Emissions Avoided:** 19 tons
- **Annual Natural Gas Savings:** 3,600 therms



Contact us at Innovative-Solutions@PeoplesGasDelivery.com
or InnovativeWaysToSave.com to get started.