North American
Gas Heat Pump Collaborative
TECHNOLOGY FOR A CLEANER FUTURE

Commercial Gas Heat Pumps

Solutions for Increased Efficiency, Lower Operational Costs and Lower Emissions

How Do Gas Heat Pumps Work?

Commercial gas heat pumps (GHPs) are a highly energy-efficient technology used for space heating cooling, and water heating. These highly efficient GHPs draw in thermal energy from outside air where it is transferred 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 GHPs Available for Commercial Use

Gas-engine driven heat pumps (GEHP). GEHPs supply heating and cooling to commercial buildings. They use a natural gas engine to power a compressor, which drives the refrigeration cycle.

Gas absorption heat pumps (GAHPs). GAHPs provide heating, cooling and domestic hot water. GAHPs use 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.

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

Success Story

Arleta Manor

Arleta Manor, Toronto, Canada

At a social housing complex for older adults in Toronto, two GAHP 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: 10,000 m3

Why Gas Heat Pumps?

- **Lower costs.** GAHPs offer lower operating costs and reduced energy costs compared to existing gas heating equipment and electric heat pumps.
- **Environmentally friendly.** GAHPs do not have harmful flurocarbons. Both GEHPs and GAHPs have no 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.
- **Multi-use.** GAHPs can provide both heating and cooling by using natural gas.
- **High efficiency.** The product also is highly efficient in cold climates.

About the North American Gas Heat Pump Collaborative

The Collaborative is a group of gas and dual fuel utilities who supply more than one-third of all U.S. and Canadian households with natural gas. The Collaborative recognizes GHP technologies play an important role in decarbonization and uses market transformation tactics to accelerate the adoption of GHP technologies throughout North America. The Collaborative and its member utilities actively promote HVAC GHP technologies through financing, training opportunities, outreach, and developing technology advocates across North America.

To learn more about the Collaborative's capabilities and connect with Collaborative members, visit our website **gasheatpumpcollab.org** or email us at **info@gasheatpumpcollab.org**.