

Direct-fired absorption chiller

Natural gas saves money and the environment

Anoka-Hennepin School District, MN

- Direct-fired absorption systems
- 815 combined cooling tons
- \$17,700 annual energy savings

Mechanical engineers:
ATS&R, Andover, Oakview;
Erickson Ellison, Ramsey



Left to right: Oakview Middle School, Ramsey Elementary, Andover Elementary

*"The [absorption] technology
sold itself."*

— Louis Klingelhoets

*Director of building
and grounds,
Anoka-Hennepin
School District*

School's cool, thanks to natural gas-powered cooling equipment. When Anoka-Hennepin School District rebuilt one school and added on to two others, they outfitted each with a natural gas direct-fired absorption chiller. In all, 815 tons of cooling were added to Oakview Middle, Ramsey Elementary and Andover Elementary Schools.

Natural gas cuts costs

In 1993, Louis Klingelhoets, Director of Building and Grounds for Anoka-Hennepin Schools, began looking for a replacement for the costly electric cooling at Andover Elementary School and cooling for a new addition. After touring other installations with Dave Milligan of CenterPoint Energy Minnegasco and analyzing both gas and electric options, Klingelhoets saw clear advantages, including long-term projected energy savings, with natural gas-fired equipment.

New direct-fired systems technologically superior

"New direct-fired equipment is far superior to the older steam-driven absorption chillers," Klingelhoets said. "Several of our schools have older, single-effect absorption systems, so we were familiar with the technology. But the new systems are twice as efficient, so it was a natural shift for us to go with gas absorption." "Our interest was in building the most energy-efficient buildings possible," Klingelhoets said. "Absorption technology has been time-tested and proven, so it was a clear choice."

Environmental benefits a bonus

Another key factor in choosing natural gas absorption chillers was the need to eliminate chemical refrigerants. "We wanted to avoid [them] altogether," Klingelhoets explains. With water used as the refrigerant, absorption systems are, quite literally, an investment in a cleaner environment.



Oakview Middle School's 320-ton McQuay/Sanyo direct-fired natural gas absorption chiller

Natural gas direct-fired absorption chillers will:

- Lower your operating costs
- Reduce life cycle expenses
- Eliminate CFCs or HCFCs
- Provide heating/cooling flexibility for “shoulder” months
- Reduce noise and vibration levels for quiet operation
- Avoid peak electric demand charges
- Integrate microprocessor controls with automated building systems

Oakview Middle School

When Oakview Middle School rebuilt, the bigger school called for a larger system. So a 320-ton McQuay/Sanyo direct-fired absorption chiller was installed. \$6,500 in estimated energy savings each year added up to a quick payback on the system.

Ramsey Elementary School

An addition to Ramsey was also constructed with a York direct-fired absorption chiller. The estimated annual energy savings of the 235-ton chiller is \$5,400.

Andover Elementary School

The old electric hydrochlorofluorocarbon (HCFC) cooling system in the existing Andover building was replaced with 260 tons of cooling from a York direct-fired absorption chiller, which handles both the older section and the addition. Reduced operating costs with the natural gas system mean estimated savings of over \$5,800 per year.