

Absorption cooling system

Savings with natural gas help speed payback

Unity Hospital

Fridley, MN

- Seven surgical units
- 200-ton
- Annual energy savings of \$5,500

Mechanical engineer:

Dunham Associates

Bloomington, MN



Unity Hospital, Fridley

Cost savings

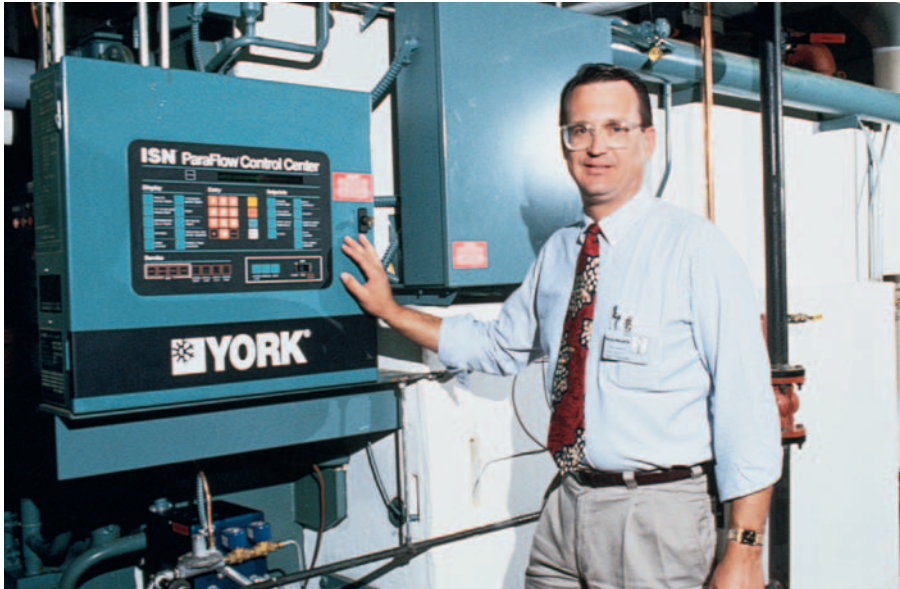
When it was time to add another wing to Unity Hospital in Fridley, Minnesota, cooling it with a natural gas chiller made sense. The 275-bed hospital is part of Allina Health System, a not-for-profit integrated health care system and, like all health care organizations, it needs to deliver quality care as cost effectively as possible. Efficiency of facility operations and energy use is a must.

Unity used natural gas absorption chillers in other parts of the hospital for more than 20 years before it added a new surgical wing in 1993. A 200-ton direct-fired absorption chiller was the natural choice to cool the addition. “The new direct-fired absorption chillers are even more efficient, and they are less expensive to operate than electric,” says David Gabrelcik, Unity’s chief operating engineer. Unity estimates a 30 percent savings.

No peak electrical load burden

The absorption system met another important requirement: Unity wanted to avoid adding to its peak electrical load. In addition to minimizing electric demand during peak hours, the natural gas absorption chiller completely eliminated the need for back-up power generation equipment. “We can keep the natural gas chiller running right through the hottest part of the summer. We don’t have to shut down on peak electric days,” says Gabrelcik.

Using natural gas for cooling also qualifies the facility for an electric load management program, which significantly lowers their summer electric costs.



Previous experience with natural gas absorption chillers made this an easy choice for David Gabrelcik, chief operating engineer at Unity.

Other benefits

Helps assure a healthy environment

It isn't surprising that Unity was also concerned about maintaining a safe and healthy environment for its patients. The absorption system offers considerable environmental benefits over the alternatives. The most obvious is eliminating the need for chlorofluorocarbons (CFCs). Most absorption systems use water as a refrigerant, avoiding the use of harmful chemicals.

And by choosing natural gas instead of electric for the new cooling load, Unity calculates that 326,000 fewer pounds of coal per year need to be burned to produce electricity. That keeps 840,000 pounds of carbon dioxide and 14,000 pounds of sulphur dioxide emissions out of the air each year.

Unity also reduced water consumption and sewer discharge by 2.7 million gallons per year by implementing a program to soften all chiller condenser water.

Rapid payback

Unity estimates that operating the natural gas chiller costs nearly \$5,500 less per year than the electric alternative. This represents a 30 percent savings in energy costs and payback on investment of under three years.

A simple design, a simple decision

The natural gas absorption chiller offers other benefits as well. Because it has only a few simple moving parts, its operation is quiet and vibration-free, making it ideal for use in a hospital setting. This simple design means low-maintenance operation.

Considering all the benefits of the natural gas system, Gabrelcik points out, "It made sense to me to go with the natural gas chiller for the new wing."