



- Two direct-fired double-effect chiller/heaters
- 50 total refrigeration tons
- 20,000 sq. ft. printing plant
- Garland, Texas



A combination of two gas-fired units enabled a printing facility to cut annual cooling costs by 50 percent over electric equipment, increase comfort for employees, and significantly reduce paper waste.

Metro Label, a 20,000 sq. ft. printing facility near Dallas, wanted to find a dependable, cost-efficient, and easy-to-operate-and-maintain alternative to electric cooling equipment. The decision to purchase a combination of two Yazaki 20-ton and 30-ton direct gas-fired units, installed by Lone Star Gas Co. in 1984, proved to be a sound one.

One of the most attractive features to plant officials was that both heating and cooling capabilities are combined within the Yazaki unit, saving both the cost of separate units and space at the site.

When operating in the chiller mode, natural gas is used to begin a several-stage process. First, a

solution consisting of lithium bromide and water is heated with natural gas until the water boils off.

The resulting steam is condensed at a high pressure, then sprayed onto water-filled coils in the lower pressure chamber. Evaporation at the lower pressure produces a cooling effect. Air flowing over the chilled water coils inside the building transfers the heat from the room air.

The water vapor is then absorbed by the strong lithium bromide solution, and the cycle is repeated.

While the initial cost of gas cooling equipment is higher than electric air conditioning coupled with a conventional boiler, there is no peak energy demand penalty for





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gas. As a result, the Yazaki pays for itself in energy savings after approximately three years, depending upon volume of use and utility rates.

Jerry Abbott, Metro Label's owner, said the equipment has saved 50 percent in annual operating costs compared to the proposed all-electric HVAC cooling and heating system.

"Less paper waste alone (due to decreased humidity levels) has

resulted in significant savings for us," Abbott says. "Dallas is a hot city; we rely on the system 12 months a year and have had absolutely no problems with it. We're able to maintain 50 percent humidity, which I feel very positive about. My employees love the more comfortable environment, too."



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