



HEAT PIPE TECHNOLOGY
a subsidiary of MiTek® • a Berkshire Hathaway company

CASE STUDY

Manufacturing Facilities
Pharmaceuticals

Pharmaceutical Company Finds a Cure

THE PROBLEM

Based in Memphis, Tennessee, GlaxoSmithKline is a world leader in pharmaceutical manufacturing and research that has developed many of the leading medicines available today.

In order to maintain the pristine quality of products that the world has come to expect from GlaxoSmithKline, proper care must be taken to ensure the quality of the air inside their production facilities. In order to meet strict manufacturing requirements designed to maintain product integrity, the indoor air must have a relative humidity of 50% at all times while maintaining an indoor temperature of no greater than 72°F. Using conventional methods, this would require either a continuous over-cool and reheat approach, or an energy-intensive desiccant system, both of which cost GlaxoSmithKline valuable energy dollars.



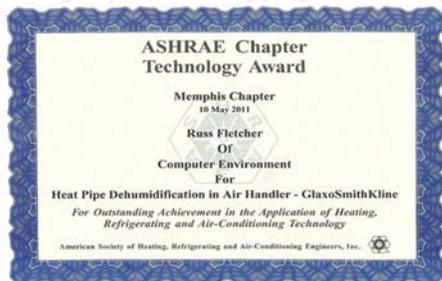
THE SOLUTION

Dehumidification Heat Pipe Systems

Heat Pipe Technology's wrap-around Dehumidification Heat Pipes (DHPs) utilize the phase change of the working fluid to precool the outside air before entering the cooling coil and reheat the air after the cooling coil. This method has no moving parts and requires no additional maintenance. DHPs also reduce the load on the cooling coil and can reduce or eliminate the energy that would otherwise be needed for a separate reheat system.

THE RESULTS

Prior to the installation of the DHPs, a chilled water temperature of 39°F was required to maintain design conditions, resulting in a high cooling load. After installation of the heat pipe system, the incoming air was pre-cooled, allowing the unit's chilled water temperature supply to increase to 42°F while still maintaining space design requirements. In May 2011, the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) recognized this project with a regional outstanding achievement award in energy efficient retrofits!



PRECOOL: 9°F on average, yielding a chilled-water load reduction of nearly 8 tons, saving **\$9,400/yr**. REHEAT: 185,000 kWh, resulting in a direct savings of **\$17,000/yr**.

The direct and indirect **carbon savings** for this project are estimated at 164 metric tons. In total, the net savings from the installation of the heat pipe system is over **\$26,000 per year** with a simple payback of **under 2 years!**