

# CASE STUDY: Utility Cost-Reduction/Comfort Improvements Retrofit



## **Background:**

**Regional Medical Center**, a 400-bed Hospital in Madisonville, Kentucky wanted to reduce utility costs and correct comfort problems experience by patients and staff. Comfort was so bad that complaints were registered on nearly every patient release questionnaire and frequently at staff meetings. The Hospital elected to accomplish the objectives through a performance contract program offered by a controls vendor. ThermalTech was retained as the engineer for the program.

## **Value-Engineering Analysis and Design:**

We conducted a detailed utility analysis of the facility and presented improvement recommendations in a report. Design and start-up assistance was provided for the following improvements:

- Conversion of central chiller plant to variable-flow, primary/secondary pumping
- Medical vacuum system re-design
- HVAC controls upgrade, including computer monitor with graphics, direct digital control of 24 airhandlers and powerline carrier control of 288 patient room PTAC units
- Lighting retrofit
- Condensate tank replacement and insulation
- Radiology HVAC retrofit
- Low-flow fixtures in patient rooms

## **Benefits to the Customer:**

- For the improvements installed, the vendor guaranteed annual utility savings of \$69,000. During the first year after installation, actual savings were over \$73,000 (6% ahead of projections).
- Comfort has improved dramatically. Patient and staff complaints have virtually ceased.
- Maintenance benefits have also resulted. Filters are now changed as needed, based on static pressure differential, rather than monthly. Cooling tower run-time has been equalized by the new controls resulting in extended belt life (over one year instead of two months). The graphics provided with the new controls are helping the maintenance staff monitor and solve problems quickly.