

>>>> 2009 *Manufacturer*  
**spotlight**

## LoadMatch® Brings Many Benefits to Buffalo Medical Center

A new medical building outside downtown Buffalo, NY, includes a Taco LoadMatch® heating and cooling system that allowed an area design-build firm, MJ Mechanical, to win the project by providing a cost-effective alternative to a conventional 4-pipe fan coil system that proved too expensive for the owner's budget.

The three-story, 65,000-sq.-ft. Maxim Medical Center is an outpatient clinic facility focusing on cancer care, urology and imaging. It features state-of-the-art linear accelerators for advanced cancer treatment.

The original proposed HVAC system came in over budget by some \$1 million, which prompted MJ Mechanical's Design-Project Coordinator, Drew Nowak, to propose a simpler, less expensive alternative that he had been first introduced to in 2007. His proposal centered on Taco's single-pipe LoadMatch system, which requires less pipe, eliminates control valves and reduces balancing valves to a minimum.

The LoadMatch system is centered around small, low kilowatt LoadMatch circulators. All loads in a LoadMatch system operate separately from one another, and the secondary flow that circulates through each terminal unit is independent of the system's primary distribution pumps. Because it eliminates all control valves and up to 40% of piping, first costs are reduced with a LoadMatch system. Lower pump head and operation of the circulators to match the load reduce operating and maintenance costs.

Drew first encountered the Load-



Match system at a Taco-sponsored gathering of design and project engineers held in Montana. At the work sessions, the LoadMatch concept was introduced and LoadMatch system design was explored using the proprietary HSS software platform, which enables engineers to quickly lay out a complete hydronic system, make equipment selections and position/size everything from boilers and air separators to circulators and valves. Calculations and schedules are automatically calculated by the software, saving engineers hours of design time.

The Maxim Medical project, Drew felt, would be an ideal LoadMatch application that would still include fan coils but cut out a lot of the installation costs of a conventional 4-pipe system. Plus, it would help qualify for energy grants under New York State's Energy Research & Development Authority (NYSERDA) utility program.

LoadMatch specialist Jeff Pitcairn prepared an initial system design for

Drew using the HSS software; Drew then finalized the design, employing just over 100 LoadMatch circulators and McQuay fan coils, and adding a thermal ice storage system to save additional energy. Drew reports that the HSS design tool saved him almost 80 work hours or the equivalent of 2-3 weeks of design time on the Maxim Medical building project alone.

"Design-build projects typically go back and forth between the owners and the design firm, with multiple additions and deletions to account and adjust for. With HSS, making those changes and recalculations is quick and easy," he says.

The Maxim Medical HVAC system consists of a primary (LoadMatch) loop and multiple secondary loops for the chillers, thermal storage banks and a fluid cooler. The main mechanical room is adjacent to the medical building and consists of two non-condensing Teledyne Lars gas boilers (1 million BTU each), a Liqui Chill liquid chiller and Taco-supplied FI and KV pumps, 4900 Air Separators and two expansion tanks – one tank for heating and the other for cooling.

Drew is sold on the LoadMatch system for future project applications. Being a young engineer, he did not have to jettison a mindset averse to trying an unconventional system like LoadMatch. "Everything's new to me," he says. "There's always a degree of skepticism, for sure, with something you haven't used before, he adds, "but if it works, and LoadMatch does, then why not use it?"

Circle 8.