

## THREE BEARS LODGE INDOOR WATERWORLD

WARRENS, WIS.

### COST-BENEFIT ANALYSIS

■ CHILLED WATER SYSTEM

Cost: \$1.8 million  
Annual savings: \$115,000,  
or a 4-year payback

■ HIGH-ENERGY BOILER  
SYSTEM AND HEAT EXCHANGER

Cost: \$140,000  
Annual savings: \$65,000,  
or a 1¼-year payback

■ SKYLIGHTS

Cost: \$20,000  
Savings: \$1,430 savings,  
14-year payback (estimate)  
Overall payback: 9½ years

■ HEAT-RECOVERY HVAC SYSTEM

Cost: \$630,000  
Annual savings: \$210,000,  
or a 1¼-year payback



THREE BEARS LODGE INDOOR WATERWORLD

**HUG A TREE** Yogi Bear's woods-themed waterpark shares a chilled water system with the connected hotel, using the hotel's waste heat to warm the pools.

Respecting the environment comes naturally when you're out in the wilderness. Just ask the owners of the Three Bears Lodge Indoor Waterworld at Yogi Bear's Jellystone Park Camp Resort in Warrens, Wis. Their facility is "the most aggressive design we've had with energy focus in the waterpark report industry to date," says Jeff Nodorft, director of aquatic engineering with Ramaker & Associates Inc. in Sauk City, Wis.

Due to the project's rural location, propane is the only available fuel source. As propane's price continued to rise, (it jumped 26 percent in one year), the owners became increasingly concerned about energy costs.

As a result, the biggest investment for the \$16 million, 48,000-square-foot indoor

waterpark was a chilled water system. Cooling the hotel produces exhaust heat that is then used to warm the waterpark's pools. What's a waste product for the hotel becomes a useful necessity for the waterpark. The system costs approximately \$1.8 million, with projected annual savings of \$115,000.

The facility also uses a high-energy boiler system and heat exchanger system, operating at a 10 to 15 percent higher efficiency rate than traditional systems. The boiler costs \$140,000 a year and has a projected savings of \$65,000.

An independent HVAC system is used to heat the pool as well. Exhaust air is extracted via heat transfer plates. The HVAC system reclaims 60 percent of the heat rejected in the exhaust air stream.

The overall savings: a 20 percent cut on electrical costs and 44 percent savings on propane.

The facility houses a 3,600-square-foot wave pool, a 575-foot-long lazy river, four slides and an indoor/ outdoor whirlpool. There's also a "Water Wars" activity area and multilevel wading pool play structure.

Built to resemble a picnic area in a forest, the waterpark could convey an environmentally friendly message, Nodorft says. But it's the savings that made the decision to be energy-efficient in the end, he says.

Still this waterpark sets an example for future endeavors. "It's a great step forward in looking at the different ways energy systems can be used in the facility," he says. — R.Y.

# Wilderness Wonder

A backwoods waterpark resort uses high-tech green technology to cut energy costs