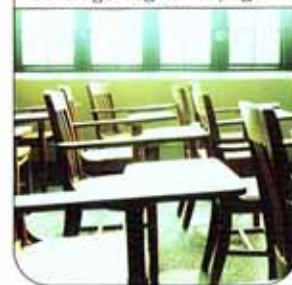


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# the NEWS



AUGUST 8, 2005

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When the Carbon Hill Elementary School in Walker County, Ala., was rebuilt after a hurricane, the school district concluded Mat-Faced Micro-Aire Duct Board from Johns Manville would provide lower installation costs and long-term energy savings.

## HVAC Solutions For Schools

### How Much Does Your State Spend On System Upgrades?

By B. Checket-Hanks  
Of The News Staff

**I**t's hardly news that America's school buildings are aging. In many areas of the country, school HVAC systems range from the inefficient to the decrepit. HVAC systems are now widely recognized as having a big impact on IAQ problems among students and faculty, and making smaller system changes is much preferred to building a new school.

According to *Education Statistics Quarterly*, "The median total expenditure by school district in the nation was \$8,007 per student. This included current operating expenditures, capital outlays (for school construction and equipment), expenditures for programs other than elementary/secondary education (such as adult education and community service programs), interest payments on long-term debt, and payments to state and local governments."

The quarterly, a publication of the National Center for Education Statistics (NCES, [www.nces.ed.gov](http://www.nces.ed.gov)), stated, "A major barrier to schools' improving their facilities is the substantial cost involved. If schools are unable to obtain the funding they need to perform maintenance or construct new buildings when necessary, facilities' problems multiply, which can result not only in health and safety problems, but also in increased costs of repairs."

Continued on page 17

## New System Designed To Save Money, Energy

By Mark Skaer  
Of The News Staff

**A** new technology developed for use in California could become an attractive option for homeowners in many parts of the country. According to the California Energy Commission (CEC), keeping the approximately 100,000 new homes built in California each year cool and comfortable adds about 280 megawatts per year of peak load to the state's already overtaxed electrical system. The CEC estimates that 37 percent of the

Continued on page 38

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### motor tips

For tips on how to tell when a motor is overloaded and what can be done with a new replacement direct-drive fan or blower motor when little or no speed change can be detected from one connection to the next, read the technical article "Motor Tips: Overload And Speed Change." Go to [www.achrnews.com](http://www.achrnews.com) and check out Extra Edition today.

# Prescription For Aging Cooling Towers

**C**RYSTAL LAKE, Ill. — Metal cooling towers lined with galvanizing or other coatings have been around for a long time. Over the years, metal cooling towers can become high maintenance, and their performance drops off, as Marvin Richer, owner of the Crystal Lake University Center, knows quite well. The facility uses a cooling tower on an absorption chiller.

"We were spending between \$5,000 and \$10,000 a year on cooling tower repairs — patching metal, putting in rubber seals and gasketing. In other words, they were Band-Aid fixes just to keep the tower from leaking," he said. The galvanized metal-lined tower had been installed in 1950.

"As the tower got older, not only did we have ongoing leak problems, we started to have a structural problem," Richer explained. "Water is pretty heavy, and the tanks that hold the water on the bottom were getting heavier and heavier as we added more and more materials to fix the leaks. All that weight was beginning to bend the structural members that held the cooling tank together."

Options seemed limited: repair or replace. "Given our choices, we were most likely going to install a new tower similar to the old one," Richer said.

"But first I wanted to look into a new plastic type of cooling tower that was said to be more reliable and require less maintenance than the metal-lined models."

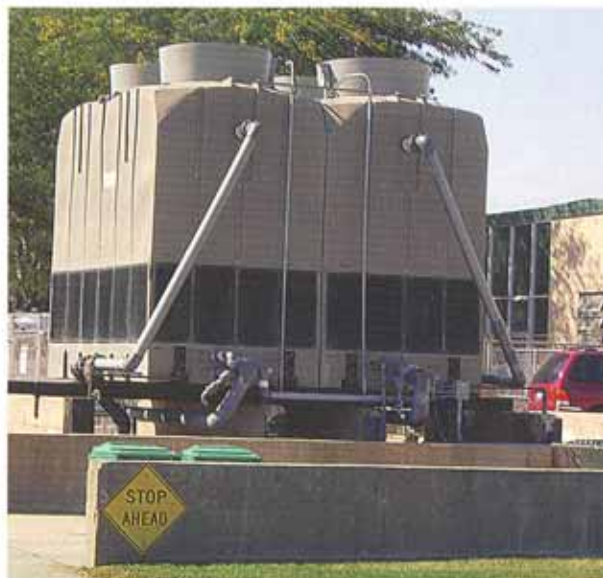
## The Plastic Revolution

What Richer was looking for has become a new prescription for replacing ailing cooling towers or adding capacity: engineered molded plastic cooling towers.

"Just as advanced plastics have replaced metal in many high-tech and industrial applications, plastics also offer a good alternative to metal-skinned cooling towers," commented Delta Cooling Towers Inc., Rockaway, N.J., a manufacturer of engineered-plastic tower liners.

Over decades, lined metal towers may become increasingly thin-skinned, inefficient, and can cause unscheduled process disruptions. Secondary damage can also be caused by chronic "leakers," and outdated tower fans and motors often consume more energy than necessary, Delta stated.

In the past, the company



Advanced plastics offer many advantages to the cooling tower market.

explained, "The prevailing cure for a leaking or corroding cooling tower was simple, although not easy: You either repaired it or replaced it." Repairs may include reskinning or coating tower linings. "Welding patches on galvanized linings might work, but typically not for long."

Metal cooling towers also are subjected to changes in pH, chemical treatments, sunlight, pollution, salt air, and process chemicals. Engineered molded plastic cooling towers feature one-piece construction and are rust- and corrosion-proof. Those manufactured by Delta are rotary-cast with a single- or double-wall, UV-protected, polyethylene shell. The product casings carry a 15-year warranty.

## Space, Energy Savings

"We thought this [plastic] might be a better option for us," Richer said. "If you are familiar with plastics, you know that engineered plastic is very tough and this has proved to be the case. The new cooling tower has been trouble-free for over three years."

"We still have normal maintenance," he said. "We clean in the spring and make sure the filters are clean. But there has been no repair work on the tower, no leaks at all."

These factory-assembled plastic towers also can now be combined to provide up to 2,000 cooling tons in a single, modularized unit, the company said, allowing for system expansion. The modular design can help conserve real

estate. By molding towers into a rectangular shape, some manufacturers enable users to cluster cooling towers in a group that occupies a smaller footprint.

"We actually got more cooling with less tower," said Richer.

Utility savings are being realized through the new tower's direct-drive motors that power the cooling fans. "The two motors installed on the old tower were each 40 hp, three-phase, 480 volts," said Richer. "On the new tower there are four 10-hp motors, so we now have only half the power requirement. Plus the new motors are more efficient than the old ones."

The lightweight plastic shell weighs up to 40 percent less than a comparably sized steel tower, an important consideration for rooftop installations. An induced-draft, counterflow design incorporates I-beam "pockets" in the tower basin for reinforcement, so that a plastic tower can be mounted on standard I-beams or imperfect concrete pads.

"The installation of our new tower took a total of four days," said Richer. "In fact, the installation of the tower was a one-day deal, but some pipes coming into the building had to be reconfigured so that took extra time."

For more information, contact Delta Cooling Towers, Inc., 41 Pine St., Rockaway, NJ 07866; 800-289-3358; 973-586-2243 (fax); sales@deltacooling.com; www.deltacooling.com. ®

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