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Statue of Liberty Chills with Plastic Cooling Towers

Monument to freedom is now independent of galvanized metal HVAC equipment and a ruinous corrosive environment

She has put on a nice face for more than 100 years, welcoming seafarers to these shores with dignity and grace. But deep down, the Statue of Liberty was hurting. Standing in the wet, salty environment of New York Harbor left her interior workings vulnerable to massive corrosion and malfunction. Something needed to be done.

Fortunately, the American icon did not have to suffer in silence for long. Earlier this year John Culkin, president of C&S Building Services in Farmingdale, NY, led a team of HVAC technicians to Liberty Island to install two new cooling towers. The steel-clad towers that had served the

great lady for well over a decade were in a state of rust and ruin.

“We needed a corrosion-proof cooling tower. Even the stainless steel towers they had out there couldn’t survive the elements. All the fittings and nuts and bolts had rotted out. We wanted a maintenance-free solution for a wet, salty environment,” said Culkin.

Culkin, who for eight years has worked with the National Park Service, which maintains the statue and museum, also had another problem: How to ferry hefty equipment from the mainland to Liberty Island, which is about a half-mile south of Ellis Island. If the replacement towers were too heavy, the rigging fees would skyrocket because a bigger, more powerful crane would be necessary. Too, a special crane would be required at the work site. The costs were prohibitive.

Culkin didn’t need to look far for a solution. Since C&S manages maintenance and repair activities for a long list of firms, his travels had brought him in contact with products developed by Delta Cooling Towers, Incorporated. The firm has been manufacturing factory assembled, non-corrosive, high-density Polyethylene (HDPE) cooling equipment since 1971. Culkin knew from experience that the plastic cooling towers were easy to maintain and impervious to harsh chemicals, bitter environments and pH deviations.

“The motivating factor was the corrosion proof aspect. If you look at the kind of maintenance you have to perform on most cooling towers, corrosion isn’t going to be your primary issue. Your concerns are mostly bearings and shafts. But in this case, in New York Harbor, corrosion maintenance would have been an enormous liability. The fact that you’re not going to get any corrosion is an enormous savings. By choosing Delta we greatly reduced those costs.”

The lightweight plastic towers also solved Culkin’s transportation dilemma. A normal sized crane could easily lift the equipment to the deck of a ferry; and the National Park Service zoom boom would suffice when the C&S team arrived at Liberty Island.

“The biggest thing is the plastic towers don’t weigh as much as stainless steel. You don’t need big rigging. That kind of rigging equipment would be difficult to get to the island. We used the zoom boom on island to do the lifting. I don’t think there’s another tower we could have done that with. Otherwise, I would have had to do it in pieces or bring a crane to island, which would have been very expensive.”

Culkin’s five-member team installed a 250-ton Premier tower to cool the museum at Liberty Island. A smaller 70-ton Paragon tower was chosen to cool the interior space of the Statue of Liberty. The service technicians also performed a controls upgrade of the HVAC system, and replaced pumps, disconnect switches and all the steel piping outside the statue. The work took about six weeks and was completed in time for 2008 Independence Day activities.

Another advantage of a plastic tower is its construction. A cooling tower is basically a giant steel pan, 10- to 50-feet long. Most towers require continuous support.

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However, the plastic towers are built into a steel frame. As a result, less support material is needed. "It's fairly simple to install. Normally, you have to buy vibration rails and provide a means of continuous support at the bottom of a tower. With the plastic towers, if you have any vibration issues all you'd have to do is buy springs."

Other significant design advantages include direct-drive Premium Efficiency fans, a 15-year casing warranty and various low-maintenance features. "You've got great access to the equipment. It's particularly well made."

President John Flaherty is proud to that his company was asked to come to the rescue of Lady Liberty. Paraphrasing the famous inscription at the statue site, he said, "Give me your tired, your poor, your huddled masses yearning to breathe free – and give me plastic, non-corroding, trouble-free cooling towers. It's a special place with some unique space constraints. Fortunately, our lightweight features helped everything go smoothly."

The Statue of Liberty rests on a granite pedestal inside the courtyard of the star-shaped walls of Fort Wood, built on Liberty Island for the War of 1812. The statue is often thought to be on Ellis Island (where Culkin is under contract to maintain operations) because of its symbolic welcome to immigrants. Both islands are popular tourist attractions that cannot afford untimely closures due to maintenance problems. Here again, the plastic design plays a significant role.

"With the plastic towers you'll have less down time because maintenance can be performed quickly. For example, unlike a stainless steel tower, you're not going to lose a whole side of a tower due to rotting. The only emergency outage would be a fan or fan motor. But the way they make them, those units are easily replaced. It's only four bolts, so you can change it and have it up and running quickly."

Culkin and company have had no problems with the new towers since installation. For those who would scoff, citing the short time the towers have been in operation, Culkin has a quick reply.

"When you put new equipment in, usually lots of things go wrong when you first turn it on. You make your adjustments and from there everything should be okay. When things go particularly well, there's not a lot to say. And that's how the Delta installation has gone. We've had no issues since the day we turned it on."

Now that's independence.

For more information, contact Delta Cooling Towers, Inc., 41 Pine Street, Rockaway, NJ 07866; Phone (800) BUY.DELTA (289.3358); Fax 973.586.2243; E-mail: sales@deltacooling.com; or visit the web site: www.deltacooling.com.

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