
Department of Energy

American Indian Complex to Cool Off Using Ice Storage System

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Ice storage coolers lie next to the central plant for the American Indian Cultural Center and Museum in Oklahoma City, OK. | Photo courtesy of the American Indian Cultural Center and Museum |

New ice storage coolers at the American Indian Cultural Center and Museum in Oklahoma City, OK are saving energy and saving money.

In Oklahoma City, summer temperatures can get above 100 degrees, making cooling more of a necessity than a luxury.

But the designers of the [American Indian Cultural Center and Museum](#) (AICCM) wanted to make cooling choices that reflect American Indian cultures' respect for the land. So, rather than using conventional air-conditioning, the museum's main complex will use an ice storage system estimated to save 644,000 kilowatt hours of electricity a year.

"Certainly it was a choice to save money in the long run," says Nathan Hart, Director of Community Affairs for the AICCM. "One of the driving forces is being friendly to

environment as well."

Freezing at night

The ice storage system will cool the 125,000-square-foot complex housing the bulk of AICCM's exhibits and activities. To visitors, the system will seem like central air-conditioning, with cool air being blown through vents.

But instead of generating that cool air from conventional refrigeration, it will come from large tanks of ice.

As the ice melts over a day, the air around it will become cooler. Fans will blow that air from the storage tanks into the buildings. The ice will be re-frozen at night, when electricity demand and prices are at their lowest.

[An energy savings calculator from Oklahoma Gas & Electric](#) suggests the system could save nearly \$42,000 a year over conventional air-conditioning.

"During the day, all we're doing is utilizing the blowing system to blow air through the storage tanks," Hart says.

It is funded by most of a \$1 million grant from the Oklahoma Department of Commerce, through the State Energy Program portion of the [American Recovery and Reinvestment Act](#). The remaining \$234,455 of the grant, Hart says, will finance glass and glazing treatments for the windows of the Museum and Cultural Center. This will allow less sunlight to enter the buildings, reducing demand for cooling.

Healing the land

The ice storage system isn't the only environmentally friendly choice the AICCM is making during construction, which is expected to be completed by 2015. The steel walls of the Hall of the People, part of the main complex, are 98 percent recycled from things like appliances and bedsprings.

In addition, the entire museum complex – including a visitor center, amphitheater, hotel, retail space, a dance circle and athletic fields – is being built on an area that was once the nation's most productive oil drilling site, and later turned into an illegal dump. The AICCM has undertaken extensive remediation efforts, including creating a natural wetland to filter harmful runoff before it hits the nearby Oklahoma River.

"In a cultural sense, what we're doing is healing the land," says Hart. "We're trying to be as friendly to the environment as we can."

What does this mean for me?

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