

POWER PROFILE

Customer: Thomas Jefferson's Monticello

Location:

Monticello, Charlottesville, Virginia, USA

Customer Business Issue:

Standby power for historic landmark

Solution:

Two Cat® C15 diesel generator sets
Four automatic transfer switches

Cat® Dealer:

Carter Machinery



Recognized as a United Nations World Heritage Site and National Historic Landmark, Thomas Jefferson's Monticello is both a worldclass museum and an academic think tank.

POWER NEED

Thomas Jefferson – founding father of the United States, author of the Declaration of Independence and the nation's third president – described Monticello as his “essay in architecture.” Recognized as a United Nations World Heritage Site and National Historic Landmark, today's Monticello is both a world-class museum and an academic think tank.

During its time as a public venue, Jefferson's historic home just outside Charlottesville, Va. has attracted more than 27 million visitors. Archaeologists have spent 50 years researching the grounds, making Monticello the best documented, best preserved plantation in North America.

Visitors to Monticello can tour Jefferson's original, authentically furnished house, which has been restored to its circa 1809 appearance. It also serves as the venue for a variety of special events, workshops, classes, talks and other public programs throughout the year.

Monticello holds one of the country's oldest and largest collections of historic artifacts, preserving everything from 18th century paintings, Jefferson's riding boots and documents – all of which are very sensitive to changing levels of relative humidity.

“We have to control temperature and humidity parameters and, without power to our geothermal system, we can rapidly slip outside this target operating range,” said Melanie Lower, manager of associate collections and exhibitions. “Really high humidity levels and falling temperatures can damage the collection. So reliable power is extremely important for preserving the fabric of the house and all of the collections contained within it.” Comfort is also critical for the more than 440,000 people who visit Monticello annually.

“You can't really expect people to learn or discover much new if they're very uncomfortable,” said Gary Sandling, vice president of visitor programs and services at Monticello. “On a hot July day when we have 2,500 people going through here, they walk into the house and expect to have air conditioning. A reliable source of power is an important aspect of making sure guests have a comfortable, enjoyable experience.”

SOLUTION

Monticello relies on solutions from Caterpillar to supply emergency backup power for the main house and two ancillary buildings at Monticello, as well as Monticello's Robert H. Smith International Center for Jefferson Studies at Montalto, located on an adjacent mountaintop.

At Montalto, a 350 kW Cat C15 diesel generator set and accompanying automatic transfer switch (ATS) were installed in 2010, supplying backup power to the center which hosts academic lectures, conferences and dinner receptions. Montalto provides a sublime setting to engage a global audience in a dialogue with Jefferson's ideas and to illuminate his continued relevance in the modern age.

Then in 2014, Cat dealer Carter Machinery provided technical support, commissioning and testing for a 500 kW Cat C15 diesel generator set and three ATS at Monticello. Located 1,000 feet from the main house and equipped with a sound-attenuated, weather-protected enclosure to minimize noise, the generator set is supported by a 48-hour sub-base diesel tank to protect the house and its possessions in the event of an unexpected power loss.

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RESULTS

Jefferson's estate is located in an elevated, forested region just outside Charlottesville, and power outages are not uncommon. Storms and falling trees tend to interrupt power anywhere from six to 10 times per year due to hurricanes and ice storms that down power lines.

"We've experienced the benefits of the first generator installed at Montalto, and we've probably had to run on backup power at least a dozen times since it was installed. The system has proven to be very reliable," explained Liz Russell, manager of planning and projects.

These backup power solutions provide added protection during the ongoing upgrades of Monticello as part of the Mountaintop Project, a multi-year effort to authentically restore the house and grounds to their appearance during Jefferson's retirement from 1809 to 1826. The \$36 million initiative includes comprehensive upgrades to Monticello's HVAC, electrical and water systems, and dramatically expands each guest's ability to experience the house and supporting buildings.

The geothermal plant will be extended to the dependencies of the main house, while the

construction of a world-class gift shop at the north pavilion and restroom upgrades are also planned.

"The success of this project relies on having clean power, and as anyone who has been involved in renovations knows, scheduled power outages occur as you are installing new service at various locations," Russell said.

Having standby power at the ready ultimately provides peace of mind for Ann Taylor, executive vice president of the Thomas Jefferson Foundation.

"As someone who oversees facilities, I can tell you it definitely lets me sleep better at night to know that the house is protected 24/7 by backup power," Taylor stated. "We're on a mountaintop in a rural setting so having confidence that the house will remain powered during an outage is very reassuring.

"Our partnership with Caterpillar and Carter Machinery means that we are doing the very best to safeguard this world treasure and preserve it for future generations."

For more information, please visit cat.com/powergeneration



Monticello uses a 500 kW Cat® C15 diesel generator set equipped with a sound attenuated, weather-protected enclosure to minimize noise.