

POWER SOLUTIONS

CASE STUDY



THE COLLEGE OF WILLIAM & MARY

Location

Williamsburg, Virginia

Market

Integrated Science Center, Education

Unique Obstacle

Research labs with specialized equipment and many years' worth of data cannot afford a single minute of downtime

Units

2 X 600 kW Diesel

Solution

Generac Modular Power System (MPS) that combines the output of multiple generators, improving reliability

Contact

Readers who may have similar application challenges and would like to discuss this success are invited to call

Experimenting with Power: How Generac Protects the College

Located in historic Williamsburg, Virginia, The College of William & Mary is the second oldest college in the nation. In 2008, the historic institution completed construction of a 165,000-square-foot Integrated Science Center (ISC) that was designed to bring the college's science programs under one roof.

Many of the disciplines have unique needs. For example, the chemistry department requires a lot of air handling, with ventilation hoods placed strategically among teaching and research labs on the ISC's two chemistry floors. Biology students need to store samples in special cooling units, usually called minus-80° freezers, as they keep their contents at -80 degrees Celsius. If the room temperature rises above 83 degrees Fahrenheit, the compressors on minus-80 fail causing faculty and students to lose years of work overnight. Due to these requirements, it is imperative that the building have a strong backup power system. The space designated for the generators is limited as well.

When Space and Time Are Key

When William & Mary began its search for a standby system, the college had originally specified a 1,250 kilowatt (kW) system with a 10,000 gallon main storage diesel tank. At the same time, new EPA regulations on standby generators made it more difficult to deliver in a timely fashion. Because of this the college would have needed to wait more than one year, causing them to re-bid

the project.

"When we re-sent the bid, Generac came back to us with 2 x 600 kW with a belly tank that held 6,000 gallons of fuel, which Bay Diesel informed us was enough fuel to last for four days without freezers start to overload then having to re-fuel which is a necessity for us," says Randy Strickland, project manager, William & Mary. "Not only does the 2 x 600 kW fit on a smaller lot than the 1,250 kW would have, but the tank is also a lot smaller and is under the system, saving us much needed loading dock space."

Due to the nature of the facility, time was of the essence. A system needed to be in place by the time construction on the new building was complete. Generac's Modular Power System (MPS) allowed for a much quicker 14-week lead time, compared with 40-plus weeks from other suppliers.

"We didn't have over a year to wait for a system to be built," says Strickland. "The re-bid had already cost us a lot of time, so when Bay Diesel, Norfolk, Va., came to us with the Generac genset solution, we were ready to move forward. Their bid was accepted in July and by February we were in business and the system was installed."

The Need for Reliable Power

The ISC currently houses all of the Department of Chemistry and portions of the Department of Biology. It is the first building on the Williamsburg campus.

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devoted primarily to scientific activity and it is for this reason that the college must provide standby power should an outage occur.

“We can’t afford to have a backup system that isn’t 100 percent reliable,” says Strickland. The building’s contents are irreplaceable and should we experience an outage without full protection, the departments could lose thousands of dollars in research within moments.”

Generac’s MPS provides the college with a solution that combines the output of multiple generators. The 2 x 600 kW system assures that each genset backs up the other, so critical loads receive redundant protection all while providing the benefits of paralleled power generation in an easy-to-use, single-source system. The system also features onboard paralleling capabilities, making it easy to achieve $n + 1$ (need plus one) or greater coverage by simply adding modular generators of the appropriate size. It is the notion of

scalability that allows for kW outputs to be tailored to the college’s needs. Generac’s modular approach combines the output of multiple generators with digital paralleling controls and integrated switching onboard each generator. Generac’s integrated paralleling eliminates the need to utilize complex third party switchgear to parallel generators.

In addition, the simple sub-base fuel tank approach pulls the fuel directly from the tank, eliminating the possibility for erroneous fuel distribution.

Providing Value

“With Generac’s MPS, the mechanical installation requirements are significantly reduced. There was no need for fuel piping since the tank was installed underneath the system,” says Rob Robins, senior vice president of sales, Bay Diesel. “The reduced installation needs also attributed to a reduction in the overall cost, making the MPS a logical choice for the school.”

MPS Hard at Work

“This system has worked like a champ,” says Strickland. While many of the outages have been planned, the college experienced two unplanned outages since installing the MPS from Generac.

“There was a campus-wide outage one night that lasted about four hours and no one even knew that it had occurred. Generac’s generators started right up and it was business as usual,” recalls Strickland. The other outage was the result of a lost phase from our local power supplier. Again, Generac didn’t let us down.”

Keeping Cool

On the heels of the successful installation at the science center, William & Mary chose Generac to install another 2 x 600 kW MPS in the SEWM Central Plant on campus that provides cooling and heating to the science center.

“Because of the environmental needs of the science center, protecting the HVAC equipment is just as critical as protecting the science center itself,” says Strickland. We knew Generac could provide us with a system that would not only save needed space, but be specified, installed and running within months rather than years— a luxury we once again did not have. Generac and Bay Diesel did not disappoint.” Not only did William & Mary benefit from the reduced installation time, but by installing two 600 kW gensets, rather than one 1,250 kW, the college saved almost 20 percent of the cost of the system originally specified.