

FREDERICK COUNTY, Va.

POWER SOLUTIONS
CASE STUDY of
FREDERICK COUNTY, Va.
PUBLIC SAFETY BUILDING

UNITS

2 x 500 kW MPS, Diesel

LOCATION

Winchester, Va.



Photo courtesy of AESCOM

MISSION-CRITICAL PUBLIC SAFETY BUILDING POWERS UP FOR EMERGENCIES

Located an hour west of Washington, D.C. and Dulles International Airport, Frederick County is the northernmost point in the Commonwealth of Virginia. Winchester is the county seat. Formed in 1743, the county today has a total area of 416 miles and a population of approximately 83,000.

Backup Power Vital to Operations

In 2007, a two-story, 70,000-square-foot building was erected near the Winchester Regional Airport to combine the offices of the Frederick County Virginia 911 Call Center, the Frederick County Sheriff's Department, and the Fire and Rescue headquarters. Known as the Department of Public Safety Communications,

the County's 911 Center is responsible for receiving emergency calls within Frederick County and dispatching fire and rescue and law enforcement units as needed. Public safety is the single-most important mission for the entire building.

In addition, an 8,000-square-

foot, single-story ancillary building was constructed to house an evidence lab and processing rooms, vehicle forensic and maintenance bays and law enforcement storage.

Having a reliable backup power system to protect these vital public safety networks in these buildings was an integral part of the design/build blueprint from day one, according to Gary Ball, project coordinator for general contractor Howard Shockey & Sons, Inc., (Shockey), Winchester, Va. The lives and safety of its citizens in the event of severe weather or a utility power outage was the number one concern.

When Emergency Power Cannot Fail

Working closely with the building designer, AESCOM Architects, Virginia Beach, Va., Shockey turned to Trumbo Electric, Broadway, Va., for direction. Trumbo Vice President John Knepper, Jr. PE toured the new buildings with Lee Anna Pyles, director of Public Safety Communications for Frederick County, to determine the emergency load needs for the facility which were varied and highly sophisticated. Pyles explained that the heart and soul of her new complex was founded on the provision of emergency services. There

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was no room for a failed response for any one of these first responders.

Knepper told Pyles that when failure was not an option, the components most needed were superior reliability, redundancy and serviceability. He explained the complex problems posed by selecting the traditional choice of a single, large displacement engine generator: not only would it take well over a year to be delivered – which she could not afford – but if this single engine generator failed, there would be no backup (redundant) power source.

Knepper noted that in addition to having emergency power up and running when the Center opened, what Pyles most needed was an integrated approach to generator paralleling that would provide the reliability and redundancy demanded by a building filled with first responders.

The Intelligence of Modular Power Systems (MPS)

Knepper said that from his decades of experience in the business of supplying backup power, there was no technology or equipment that could match the modular capabilities from Generac Power Systems, Waukesha, Wis., while meeting their budget constraints. “This is an integrated approach to generator paralleling that is cost competitive with large single gensets and traditional paralleling systems.”

Knepper told Pyles that in a Generac MPS, each genset backs up the others in the system. This means that critical loads for the Call Center, Sheriff’s Department or Fire and Rescue Service would each get redundant protection. And there was another important feature – serviceability. Generac’s MPS has built-in redundancy which would allow the Center’s individual units to be taken off-line for routine maintenance while retaining total coverage for critical circuits. MPS generators use high volume, highly reliable, over-the-road truck or industrial engines that can easily be serviced by qualified diesel technicians.

Furthermore, Knepper explained that when the County Public Safety Building needed to expand, Pyles could add units quickly and

easily as they were needed. Frederick County could purchase the generating power needed today without fear of over spending on a larger system that might never be utilized. To meet her construction scheduling needs, Knepper explained that Generac’s MPS generators use readily available high-volume engines. He explained that larger engines used in generators that produce more than 600 kW are most often built as needed and in fewer numbers, often extending delivery times by months. Instead Knepper suggested using the two 500 kW Generac gensets with more than sufficient power capability for the job and a reduced delivery time.

Pyles was appreciative of Knepper’s standby power plan for the Center and took her budget recommendations to her board in the fall of 2006.

A Highly Reliable Generator System

The budget was approved and Knepper ordered the MPS System from Generac Power Systems. The drawings and specifications for the emergency power system were prepared by Trumbo Electric. A representative of the distributor, Kelly Generators, Owings, Md., was there every day during the installation and helped through every phase of the job. “I know this is a highly reliable generator system because I have had zero calls for service,” Knepper said.

Steve Richman is the Public Safety Building facility maintenance supervisor. “I was not here when the system was installed,” Richman said, “But we have had nothing but good service from the Generac system as well as from Kelly Generators. We’ve had a few minor power outages since I’ve been here. When these occurred, the generators immediately went to work and performed perfectly. We exercise the engines for 20 minutes every Monday morning at 7:00 a.m. This is a first-class system and very good quality equipment which allows me to sleep well each night.”

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