



## A BACKUP POWER SOLUTION OF BIBLICAL PROPORTIONS

### THE MUSEUM OF THE BIBLE

Located in Washington, DC, the Museum of the Bible is an innovative, global, educational institution that aims to provide an unparalleled experience by creating one of the world's most technological advanced museums. The 430,000-square-foot building needed a unique design to hold eight natural gas generators. KG&E worked with Ennis Electric, an industry-leading electrical contractor in the DC area and SmithGroup, an integrated design firm that creates exceptional design solutions, to design the backup power system for the Museum of the Bible.



### PROJECT OVERVIEW

Model(s): 8 x 400 kW  
 Total kW: 3200 kW  
 Fuel Type: Natural Gas  
 Enclosure Type: Open  
 Voltage: 480 Volt



For the past ten years, Generac Industrial Power has hosted the Engineering Power Symposium where they recognize specific projects that exemplify the nexus of innovation design, client satisfaction and value. For this top honor, all 30 Generac Industrial distributors identified flagship projects installed and commissioned during the calendar year. These projects are judged based on: vision, scope, practicality, ingenuity and innovation and benefits to the project owner/developer, its customers and the power industry. Out of three high profile projects, Kelly Generator & Equipment's Museum of the Bible project won the manufacturer's coveted Generac Project of the Year.

From a backup power generation standpoint, there were myriad considerations due to the enormity of the structure. "Facilities of this magnitude typically have much larger loads that need to be backed up compared to a smaller project," said Keith Fogle, a foreman for Ennis Electrical Company. "There are numerous life safety issues; fire alarms, security, egress lighting, as well as other considerations that must be supported by the backup power generation solution."

One of the major considerations was the climate control system needed to preserve the MOTB's priceless relics. "The museum has historic artifacts that date back centuries and we must keep those artifacts at specific temperatures and relative humidity set points," said Kenz Meliani, electrical engineer at SmithGroup, a Detroit-based architectural, engineering and planning firm. "A large part of the climate control mechanical equipment was required to be on backup power."





The original design specified three, 1 MW diesel-fueled generator units that would be located on the penthouse level of the building, each with a dedicated load. There were a few complications with this solution, according to Mike Buser, project executive at Ennis Electrical. “The owner didn’t want to deal with maintenance issues associated with diesel fuel, not to mention the risk of a spill or a leak. What’s more, the generator units would have had to be installed on the penthouse level of the building, requiring fuel to be stored in an adjacent parking garage, resulting in lost parking spaces.”

Because space was an issue, Gary Fink, KG&E’s Technical Sales Representative, recommended “stacking the units” based on knowledge from previous projects that Generac had installed similarly. Stacking the generators allowed for saving space and adequate airflow to the equipment. Gary and John Sharpe, Power Solutions Manager at Generac, provided solutions that SmithGroup then incorporated into the design of the eight natural gas generators with integrated paralleling control that were then installed into the side of the downtown Washington museum.

With only 400 kW needed for life safety application, the remaining generators are utilized in backing up environmental systems for temperature and humidity control. Kevin Cole, CEO of Ennis Electric, suggested eight MG400 units. With only seven units needed, the eighth was used to offer an N+1 solution, should a unit come off-line for any reason. Cole noted that his level of comfort was high with Generac equipment and KG&E’s word of support for the project, both in the design and construction phases of the project.

“This was a challenging application – a rooftop installation with natural gas fuel supporting life-safety and very important critical loads,” adds John Sharpe, Power Solutions Manager for Generac. “We are pleased that the performance of the Generac natural gas generators and the design flexibility of our Modular Paralleling System could meet the project needs. Credit goes to the whole team for finding a creative and reliable generator solution for the owner.”

The project was designed around eight Generac MG400s with two rows of four units. Four units are suspended over another four, using steel framing and grating with walkways and working space at each unit as required. Fink was called upon during every phase of the design, working mainly with Ennis Electric and Southland Mechanical on the natural gas and exhaust design. “This project was so successful because of the coordination of the engineering team and everybody involved. It was a team effort and everybody had that attitude,” said Fink.

The Museum of the Bible’s eight MG400 kW natural gas paralleled generators ultimately won Generac’s Project of the Year Award because of its design, ingenuity, and installation. Kelly Generator and Equipment Inc., would like to thank all their great partners supporting the Generac product and the entire KG&E team for their hard work and dedication.



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