



**AOC HSOB Emergency  
Generator Replacement  
Contract # 2066-001**

Architect of the Capitol  
Hart Senate Office Building  
120 Constitution Ave. NE  
Washington, DC 20002

Consigli Construction Co.  
(General Contractor)  
1250 H Street, NW - Suite 975  
Washington, DC 20005

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**Figure 1. New 750kW Generator**

Cynergy performed a \$322,250 Design Build project for the Consigli Construction Company. The project was prompted by an inspection report conducted by the Architect of the Capitol (AOC) that outlined the deficiencies of the existing emergency generator system. The project improved the effectiveness and reliability of the Government Emergency and Standby Power Infrastructure. The project comprised of replacing the existing 620kW Emergency Generator with a new 750kW 480-volt diesel generator, installing a new diesel fuel system, day tank, 1200-amp load bank cabinet, and replacing critical fire pump feeders. Major elements of work included demolition of the existing generator, day tank, associated electrical equipment, conduits and wire.

Principle features of the project included:

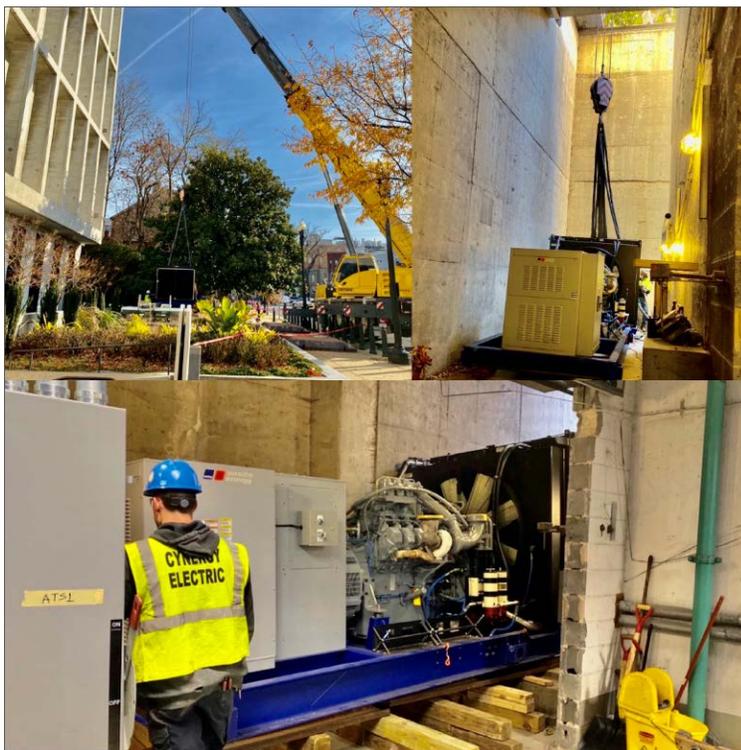
- 750kW 480-volt Diesel Generator with Unit Mounted Control Panel
- 275 Gallon Day Tank
- 1200-amp, 750kW Load Bank Connection Cabinet
- 1200-amp, 600-volt Double Throw Switch
- Remote monitoring panel for system
- Monitoring systems
- Exhaust Silencer
- Grounding System

The facility had to remain operational 24/7 during construction. All service outages had to be limited to off hours coordinated and approved by the owner. A detailed construction sequence was developed and had to be approved by the owner before any outage could

begin. Before the removal and replacement of the generator, the new 1200-amp load-bank cabinet had to be installed and connected to the new manual transfer switch. The generator had to be commissioned and placed into operation prior to the transfer of existing circuits from the old to new system.

Logistics of the project were difficult at best. The building's occupants serve Congress and Government Operations, so no noise could be made during normal business hours. The generator room was located on the basement level, which was over 40 feet below street level. The new generator weighed 20,000 lbs. A large crane was used to make the lifts, and Cynergy's team of master riggers performed all the rigging operations. The crane used to hoist the equipment into the air shaft had to be parked on Constitution Ave NE, which is a highly congested area within DC. An extensive road closure plan had to be submitted and approved, and a traffic control service was used to ensure safety for the workers, pedestrians, and drives. Before the generator could be rigged into the room, a CMU wall had to be removed, two concrete pads had to be demolished, and one new generator pad installed. This work was performed by the owner and general contractor.

A new 275-gallon day tank with supply/return pumps was installed. The fuel systems included a fuel monitoring system. Miscellaneous installation items included a grounding system, framing supports for mechanical piping, a remote emergency stop button, etc. A Factory Witness Test was conducted on the generator, along with an on-site load bank test, and start-up activities. Hands on training and operation and maintenance manuals were provided for the generator and day tank. Other items provided by Cynergy were construction scheduling, quality control, safety and security which were important elements of the entire project.



**Figure 3.** Delivery of Generator with Crane into Air Intake Shaft & into Generator Room