



**Rayburn House Office Building  
Emergency Power Upgrade RHOB & HUG  
Contract No. AOC-13-C-3005**

Architect of the Capitol  
Ford House Office Building H2-263  
Second and "D" Streets, S.W.  
Washington, D.C. 20515

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

**Eric Tievy 202-800-2802 (office) 202-329-5007 (mobile)**

Cynergy performed a \$4,385,829 contract for the Consigli Construction Company to renovate and upgrade the AOC Rayburn House Office Building 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 500 and 300KW diesel generators with two 2000KW 480-volt diesel generators, 6000-amp paralleling switchgear, creating a new generator room, installing new diesel fuel system, day tanks, 3000-amp load-bank, installing new busways, replacing critical fire pump feeders, and the addition of adding circuits to the building's standby power system. Major elements of work included demolition of existing switchgear, generators, transfer switches, associated electrical equipment, conduits and wire. Furnishing and installing new 2000KW diesel generators, 260-gallon diesel day tanks, 6000-amp parallel switchgear, automatic transfer switches with bypass, 2000-amp switchboards, panelboards, transformers, starters, VFD's, associated electrical equipment, conduits and wire.

Principle features of the project included:

- Two 2000KW diesel 480-volt generators
- 6000-amp parallel switchgear with emergency feeders
- 3200 and 2500-amp copper busways
- Five 150-amp transfer switches
- 225-amp by-pass transfer switch
- Two 2000-amp switchboards
- 3000-amp load-bank cabinet



- Remote monitoring panel for system
- 325-gallon day tank for each generator
- Exhaust silencers
- New grounding system
- New panelboards, lighting fixtures and misc. starters, safety switches, transformers and VFD's
- Monitoring systems
- Fire alarm system
- Demolition of existing generator room

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 generators could begin the new 6000-amp parallel switchgear had to be installed including a 3000-amp load-bank connected to the new switchgear. The switchgear, generators, switchboards and transfer switches all 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 new generator room was located on the basement level and the existing generator room was two floors above some 800 feet away. The new generators weighed 40,000 lbs., a large crane was used to make the lifts, and Cynergy's team of master riggers performed all the rigging operations. Before the generators could be rigged into the room an existing space had to be retrofitted with new exhaust and intake ventilation systems, sound attenuated panels, CMU walls, new roll-up door, passageway door, etc. This work was performed by the general contractor.

The new generators had unit mounted radiators so new fans/dampers were installed and discharge duct work with vibration isolation were used for cooling. A new underground 8,000 fuel tank, 325-gallon day tanks with supply/return pumps were installed. New fuel piping was installed for the supply, return, normal and emergency vents. The fuel systems included a fuel monitoring system.

Miscellaneous installation items included concrete house-keeping pads, grounding systems, framing supports for mechanical piping, structural steel to support the new busways, control circuits, painting walls and epoxy coating the floor, etc. Commissioning, operational demonstration of all systems and field testing were a large component in the project. Third party testing was provided for all NETA required testing on equipment, ground systems and cables. Factory field services were provided for the switchgear, generators, transfer switches and control systems. Hands on training and operation and maintenance manuals were provided for all operational systems.

Other items provided by Cynergy were an arc flash, short circuit & coordination study. Providing, construction scheduling, quality control, safety and security were important elements of the entire project. Cynergy used Procore™ project management software to help manage the project.

