

POWER PROFILE

Customer: Edward Hospital

Location:

Naperville, Illinois, USA

Customer Business Issue:

Continuous standby power for hospital campus

Solution:

- Two Cat® 3516 diesel generator sets
- Cat medium-voltage parallel switchgear
- Start up, testing, commissioning

Cat® Dealer:

Patten Cat



Edward Hospital & Health Services overcame sound and space constraints with a customized standby power solution to better support mission critical needs.

POWER NEED

Edward Hospital & Health Services is a full-service, regional healthcare provider that offers a wide variety of medical specialties and programming from 28 locations in 10 communities throughout the western suburbs of Chicago. Located in Naperville, Ill., the main campus supports 4,700 employees, including 1,200 nurses and a medical staff of over 1,000 physicians.

Established in 1907, Edward Hospital evolved from a tuberculosis treatment center to an acute care facility in 1955. Today, Edward Hospital offers 82 medical and surgical specialties through 26 Centers of Excellence. These include specialized cancer care, orthopedic expertise, women’s and children’s centers, among a number of others.

“Dedicated centers are so important because they allow us to provide the highest quality of care to patients with a particular condition,” explained Patti Ludwig-Beymer, vice president and chief nursing officer at Edward Hospital. “We have expertise in the physicians, nurses and ancillary staff members who can really focus on providing specialized care to our patients.”

Providing truly innovative and state-of-the-art healthcare services requires continuous research and vision. Edward Hospital executives are constantly studying key demographics of the surrounding communities and evaluating services and programs required to meet patient needs. As a result, they have expanded and renovated several times over the past 30 years.

Edward Hospital’s latest growth phase included a new standby power system and facility to improve efficiency and increase reliability. Edward Hospital needed a customized power generation system that could operate 24/7 with full redundancy for all buildings from one central location.

“We’ve seen many disasters strike hospitals throughout the U.S., and it’s very important to have backup power and services available because when the power goes off for whatever reason, patients still need to receive their

care,” said Ludwig-Beymer. “Patients will die if they don’t have the backup power available to them.”

Before construction on a new power facility could begin, hospital officials had two design challenges to overcome. First, the hospital’s previous expansions did not leave much room on Edward’s campus for a new building, so space constraints were a concern. Also, a residential neighborhood is adjacent to the hospital, which increased noise emission requirements.

SOLUTION

A project of this caliber required expertise and collaboration from four different companies. Edward Hospital partnered with local Cat dealer, Patten Cat; architecture design firm, Matthei & Colin Associates; engineering firm, Gage Consulting Engineers; and general contracting company, Power Construction, to create a customized power system and facility.

Building a new station in a tight area required some creative planning by the design team. The facility’s arrangement incorporated customized piping, wiring and automatic transfer switches to minimize space taken by the new station.

“We had to go underground through tunnels and create chases up through the building to revise the paralleling gear and programming for the new generators,” explained Dave McVey, vice president at Gage Consulting Engineers. “With a series of automatic transfer switches as well as an outdoor tap box for load bank testing right outside the power center, it makes for a very robust system.”

Patten Cat installed two Cat 3516 diesel generator sets with a dual-silencer system and paralleling switchgear to meet power generation and sound requirements. The new generator sets join an existing team of generators to create a more cohesive system.

Located next to a residential neighborhood, project designers had to consider that some homes are only 80 feet away from the new power system facility. They partnered with hospital officials and the city of Naperville

POWER PROFILE

Customer: Edward Hospital

to complete a design that kept noise to a minimum.

“We worked with the architect and hospital to ensure the sound attenuation and the equipment we provided, including the two internal and external silencers, met the decibel requirements, so that we would comply with the sound conditions,” explained Kevin Illescas, sales engineer at Patten Cat.

Additionally, the project manager systematically integrated a sound-cancelling approach into the building design to reduce escaped noise from the generator sets.

“Special considerations were implemented in the design of the building to create an intake and exhaust system that minimizes the sound transmitted to the neighbors,” said Joe Sadauskas, senior project manager at Power Construction. “Now, when the generators fire up, you can’t even hear them running over the ambient noise in the area.”

The 3516 generator sets feature a controller that provides a multi-generator set paralleling capability, which allows the system to seamlessly add generator sets for extended capacity and redundancy. This is especially important in mission critical applications. “You can’t perform surgery unless you have two types of power—normal and emergency—and the reliability of these Cat 3516 generator sets is absolutely crucial in providing the highest quality care that we’re so proud to offer here at Edward,” said Bruce Enders, central plant engineer at Edward Hospital. “If there is a power grid failure, the generators can take care of all the critical locations for emergency lighting, medical gases, vacuums and air – anything that has to do with surgery or life support systems.”

RESULTS

Fully operational since late 2013, Edward Hospital’s new power system has performed without incident, and continues to play an integral role in ensuring the hospital provides reliable healthcare.

“With space to accommodate two additional generator sets for future expansion, this new system is available 24/7 with full redundancy, ensuring a quick switchover of power due to any interruption,” said Enders.

While Edward Hospital continues to reinvent itself with ongoing expansion and renovation projects, the entire campus is now equipped with an efficient and dependable standby power system.

“This is the fourth project that I’ve worked on with Patten Cat, and it’s been another success story,” added McVey. “The greatest sign of success is in the reliability, and I can say we haven’t had any calls related to equipment failure on the Cat generator sets.”

Patten continues to support Edward Hospital through an extended service contract, which includes training, maintenance and parts.

“After installation was complete, Patten did a great job explaining things to us as these generators are larger than the ones we’ve had before,” explained Enders. “Everybody had a hands-on experience, and Patten provides very good service. We are happy with the outcome.”

For more information, please visit cat.com/powergeneration



Patten Cat installed two Cat® 3516 diesel generator sets with a dual-silencer system and paralleling switchgear to meet power generation and sound requirements at Edward Hospital.