GENERAC®
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POWER SOLUTIONS
CASE STUDY

STEPPENWOLF THEATER

Location
Chicago, Illinois

Market
Performance Theater

Unique Obstacle
In need of backup power while complying with the new local codes and the city's sound ordinances

Units
20 kW Diesel Genset

Solution
Installed a unit on a lower roof with a sound attenuated enclosure

Contact
Readers who may have similar application challenges and would like to discuss this success are invited to call 1-844-ASK-GNRC (1-844-275-4672)

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Behind the Scenes, Ready to Perform

The theater scene in Chicago is a vibrant, creative milieu featuring a wide variety of talented performers and dynamic productions. There are many popular venues for stage productions, but none more renowned than Steppenwolf Theatre, home of a distinguished acting and directing troupe that has been performing in the Windy City since its founding in 1976.

Steppenwolf Theatre Company is committed to the principle of ensemble performance through the collaboration of a company of actors, directors and designers. Its mission is to advance the vitality and diversity of American theater by nurturing artists, encouraging creative relationships, and developing new works. Steppenwolf has grown into an internationally renowned company of thirty-five artists whose talents include acting, directing, playwriting, film making, and textual adaptation. The ensemble currently features such well-known actors as John Malkovich, Gary Sinise, Joan Allen, John Mahoney, and Laurie Metcalf, just to name a few.

Its current theater, built in 1991, is a world-class facility that seats over 500 playgoers in comfort and style. Located at 1650 North Halsted Street on the city's near North Side, it attracts patrons from Chicago and around the world. A typical theater subscription season runs from September through August and features five different productions, each highlighting members of the ensemble in various roles, both onstage and behind the scenes.

Recently, the City of Chicago enacted local codes mandating standby electrical power for various types of commercial and public buildings to ensure life safety in the event of a significant utility outage. Among the requirements is sufficient backup power to operate emergency lighting, elevators, and fire fighting pumps, depending upon the nature and size of the building.

"Steppenwolf contacted our firm to provide preliminary analysis in order to satisfy the newly adopted City of Chicago code for emergency backup," says David Swanson of ESD Construction (ESDC), a commercial design / build firm specializing in projects that have intense mechanical and electrical aspects. "We determined early on that a generator was more economical than a battery-powered uninterruptible power supply (UPS) system."

After making the decision in favor of a genset, ESDC concluded that a 20 kilowatt diesel unit would be sufficient to power the theater's emergency lighting system, allowing patrons to move about and exit safely in the event of an outage.

Once that choice was made, city sound ordinances had to be considered. "The generator and its housing had to satisfy 55 decibel requirements at the rear lot line," Swanson explains. "While the front of the theatre is on Halsted — a busy, noisy street — the rear of the building faces residential units." To ensure quiet operation, a sound attenuated enclosure was specified to comply with the local code.

ESDC determined that the best location for the 20 kilowatt diesel generator was on a lower roof, over an exit hallway at the back of the theater. "The generator and its base tank are not that heavy," Swanson notes,

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"but we still had to do a complete structural analysis to satisfy the City of Chicago, including the effect of harmonics on the structure."

The elevated location of the equipment on the lower roof, though somewhat unusual, was not too difficult to handle. "The setting of the generator was relatively straightforward," Swanson says. "We had the unit delivered to a machinery mover. They in turn brought the generator to the site, and set it in place with a large forklift that came on the same truck."

Connecting the generator presented some challenges, but they were easily handled, according to the project manager. "We had to hook up the generator to an existing automatic transfer switch, and also accommodate the annunciator panel in a small, highly visible lobby that was crowded with other wall-mounted panels. Generac swapped annunciator panels, giving us one that was a better fit. At startup, a load bank test was performed to satisfy City of Chicago requirements."

For every great stage production, there's a lot going on behind the scenes that the audience never sees and cannot fully appreciate. That's certainly true at Steppenwolf Theatre, where an emergency lighting system and a supporting Generac genset are waiting in the wings, ready to perform when called upon.