STANDBY POWER

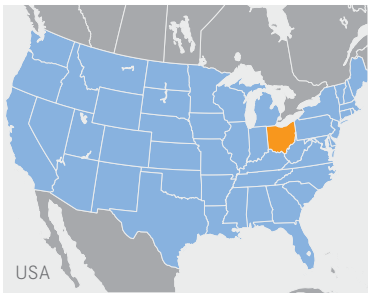
CITY SOLVES POWER QUALITY ISSUES WITH NEW, QUIET EMERGENCY POWER SYSTEM

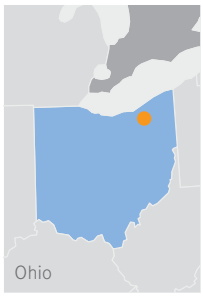
SOUND-ATTENUATED ENCLOSURE KEEPS SYSTEM FROM DISTURBING THE PEACE

// **Who:** City of Twinsburg, Ohio

// **What:** 350 kW standby power system to back up fire, police and other city departments

// **Where:** Twinsburg, Ohio, USA





Nestled between Akron and Cleveland, Twinsburg, Ohio, is a quiet city of 18,500 people that is known primarily for its Twins Days Festival. This three-day event for biological twins has grown to become the largest annual gathering of twins in the world. But when the festival is not going on, things around Twinsburg's government center are even more quiet, now that the city has installed a new emergency standby power system in a state-of-the-art sound-attenuating enclosure, both from MTU Onsite Energy.

Twinsburg's city government center was built in 1977, and it houses the mayor's office, all city departments including police and fire station no. 1, and the area's 911 service. The entire facility depended on standby power from a 125 kW generator housed in a separate outbuilding, both of which dated from the original construction. When the city decided to upgrade its emergency power system – and locate the new generator set outdoors within 10 feet of the outside wall of the government center – officials knew they also had to do something about sound control.

Original generator no longer adequate

"The original generator set was no longer able to supply power for the entire building," says Chris Campbell, public works director for Twinsburg. "The HVAC and several offices were not supported with standby power, and we were finding ourselves unable to function well during a power outage. Our facility had grown in size and complexity over the years and now had more electronics, computers, police and fire dispatchers, and emergency 911 and UPS systems. These critical systems require standby power with stable voltage and frequency to operate properly. When we would go on standby power for testing, power quality problems were wiping out some of our electronic systems."

According to Tom Drake with MTU Onsite Energy distributor W.W. Williams, the original 35-year-old generator especially didn't work well with the facility's modern UPS system, and it even led to some repair bills. "The old generator set had a mechanical governor that worked well in its day, but for today's complex electronic systems, the governor wasn't able to control

TYPICAL DECIBEL LEVELS

Activity	Decibels
Threshold of hearing	0
Rustling leaves	15
Conversation	60
Genset in sound-attenuated enclosure*	**77**
Vacuum cleaner	80
Genset without sound-attenuated enclosure	**89**
Rock concert	140

*Twinsburg's 350 kW standby generator in Level 3 enclosure.

For comparison purposes, here are the decibel levels of typical noises that people are exposed to on a regular basis. Adding three decibels represents a doubling of sound energy.

voltage and frequency tightly enough for the UPS system to function correctly," Drake explains. "In addition, because the city decided to move the generator up close to the main building, we needed to enclose the generator set in an all-weather, sound-attenuated enclosure."

City chooses MTU Onsite Energy generator

On the recommendation of the city's electrical contractor, Zenith Systems, LLC, the city selected an MTU Onsite Energy 350 kW generator set based on its proven reliable performance. The new installation is attractive and compact, with the automatic transfer switch located on the outside wall of the building right next to the generator set.

The original generator set was located in a brick garage building about 50 feet from the government center and was connected by underground conduit. In order to avoid the cost of replacing the underground conduit, Campbell says the city decided to put the generator in an outdoor enclosure and move it closer to the main building. But that meant the power system would be located just 10 feet from the outside wall of the police department and other critical city offices.

Sound-attenuating enclosure eliminates noise

To control sound, the enclosure specified for the project was a state-of-the-art MTU Onsite Energy Level 3 enclosure that provided all-weather protection along with maximum sound attenuation. In addition to 14-gauge-steel construction, the enclosure features 1.5 inches of polyether polyurethane sound-attenuating foam that meets Underwriters Laboratories (UL) specifications for flame and heat resistance. When the generator set is running, measurable sound is about 77 dBA, comparable to the noise produced by a typical residential air conditioning unit. At this level, the sound is virtually unnoticeable inside the government center. Other features of the Level 3 enclosure, according to Drake, are a UL 2200 listing, an internal-mounted exhaust silencer and lockable doors for security. The corrosion-resistant enclosure can withstand winds up to 125 mph.

"This generator set and its sound-attenuating enclosure have really worked out well."

/ // / **Chris Campbell, public works director, City of Twinsburg, Ohio**

A newly installed MTU Onsite Energy 350 kW generator set features a Level 3 sound-attenuation enclosure.

Once the new generator set was installed, it underwent successful testing and commissioning. “During testing, that generator set didn’t skip a beat,” says Campbell. “The frequency was stable, and all the systems in the building absolutely loved the power. In fact, it was working so well we were actually looking forward to a power outage. Within a week, we did have a short outage and the generator kicked right on, held the frequency through the whole event and then shut down as designed.” As Campbell summarizes, “This generator set and its sound-attenuating enclosure have really worked out well.”

MTU Onsite Energy Company
A Rolls-Royce Power Systems Company

www.mtuonsiteenergy.com

MTU Onsite Energy is a brand of Rolls-Royce Power Systems AG. It provides diesel and gas-based power system solutions: from mission-critical to standby power to continuous power, heating and cooling. MTU Onsite Energy power systems are based on diesel engines with up to 3,400 kilowatts (kW) power output, gas engines up to 2,150 kW and gas turbines up to 50,000 kW.