

St. Mark's Hospital Salt Lake City, Utah

Generator Solution

SCOPE & SUCCESS

Vibro-Acoustics designed and manufactured noise control products for Standby Generators for Emergency Generator upgrades at St. Mark's Hospital in Salt Lake City, Utah.

HIGHLIGHTS

- > Integrated design assistance offered to the Mechanical Engineer
- > Pressure drop across silencers below maximum allowable limits
- > Complied with local noise ordinances



OVERVIEW

Two new emergency generators were being installed at the **Plant Operations room at St Marks Hospital**. Each generator was capable of producing 1250 kW power. In case of an emergency, both generators were supposed to operate at the same time. Each generator required 60,000 CFM to operate at a maximum allowable air pressure drop of 0.5" WG with system effects.

The generator air intake was through a hood at the roof of the building. Generator air exhaust was through the side of the building. The property line was 45 feet away from the generator discharge. A concrete wall at the property line was supposed to shield the neighbors from the generator exhaust noise.

⚠ CHALLENGES

LOCAL NOISE ORDINANCES did not allow more than 50 dBA at the property line. The generators had a noise level of 121.9 dBA at the generator which translated into 101 dBA at the property line. The concrete wall at the property line did not make a significant difference in the noise levels at the property line.

Due to space restrictions, exhaust silencers could not be placed inside the mechanical room.

 SOLUTION

Vibro-Acoustics did extensive analysis based on the noise levels off the generators, the air inlet and outlet conditions and the surfaces within the generator room.

SILENCERS WERE PLACED at the intake of the generator to block that particular sound path. It was also recommended to replace the intake weather hoods with one made out of thicker metal to control breakout noise.

Silencers were also placed at the Generator air exhaust. Since the generator room did not have enough space in it, silencers were placed outside the generator room in the open. The walls of the silencer were covered with acoustic panels to control breakout noise. Existing air devices were reused with the silencers.

To control radiant and reverberant noise, acoustic panels were installed on the inner walls of the generator room. Acoustic panels were also installed on the concrete wall at the property line.

The combined pressure drop of the intake and exhaust silencers was less than 0.3" WG, which was less than the 0.5" WG pressure drop allowed by the generator manufacturer.

