



a clear direction for the future



case study

Hospital Standby Generator Louisville, KY

Overview

Standby generators are critical to ensuring uninterrupted power that could otherwise cause significant problems. Unfortunately, for a hospital in Louisville, the 1.5 mWe diesel generator was a problem in itself. Exhaust gases from the generator were entering the building through the HVAC make-up air intakes located in the building wall above the engine-generator enclosure. Along with an unpleasant odor, carbon monoxide and aldehydes (some of which are identified carcinogens) were causing patients and staff at the hospital to experience irritation to the eyes and nasal passages.

Challenge

The first attempt to solve the issue was to fabricate a hood extension, which was attached to the cooling air exit end of the enclosure. The 16-inch exhaust tailpipe was also pointed down near the center of the radiator face. The hope was that the cooling air exiting the enclosure would dilute the exhaust gasses and force them away from the louvered opening above. Unfortunately, prevailing air current patterns combined with the natural tendency for the warmer exhaust gasses to rise doomed this approach to failure. In need of an effective solution, the engine distributor that provided the generator approached GT Exhaust with a request for assistance in resolving the issue.

Solution

GT Exhaust's engineers examined the situation, and recommended a super critical grade catalytic silencer with modular oxidation elements to replace the existing silencer. The replacement unit was designed to fit into the same space as the existing silencer, thus simplifying the installation process. The oxidation elements in the catalytic silencer oxidize the Carbon Monoxide (CO) in the exhaust gas to Carbon Dioxide (CO₂); the aldehydes and most of unburned hydrocarbons are both oxidized to harmless CO₂ and water vapor. Additionally, the visible black smoke in the exhaust—resulting from tiny carbon particles present in the stream—is eliminated as the carbon is oxidized to CO₂.

As a testament to the effectiveness of the solution, a person can stand directly in front of the enclosure near the horizontal cooler—looking directly into the tailpipe of the generator—and experience warm, clear, odorless air. Most important, the staff and patients inside the building are no longer aware of or irritated by the standby generator exhaust fumes.



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