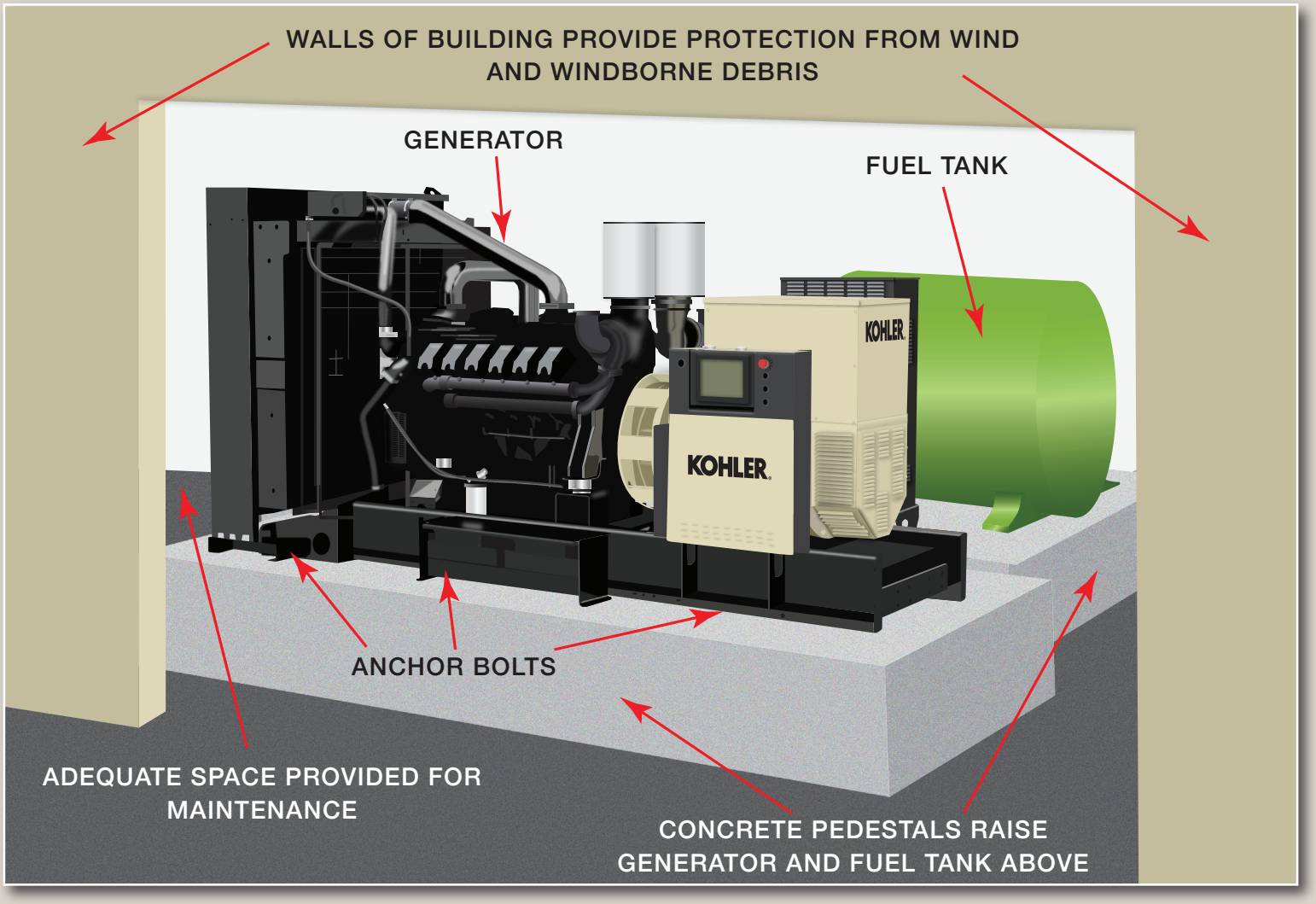
Buckeye Power Sales
Reliable Power Professionals Since 1947

Following Hurricanes Katrina (August 29, 2005) and Sandy (Oct. 29, 2012), the Federal Emergency Management Agency (FEMA)published a number of studies with their recommendations for alleviating storm damage. These studies detail how to best mitigate damage to important infrastructure systems, such as standby generator systems frequently relied upon to provide emergency electrical power during and after major storms. This Information Sheet discusses FEMA's findings and recommendations that should be considered when looking at new or existing emergency generator set installations

1.0 WHY FEMA COVERED GENERATOR SET INSTALLATION:

Many health, communication, and commercial installations have standby generator sets to ensure power to critical life and economic facilities. Hurricanes frequently produce widespread power outages when the utility fails due to wind and flooding. In the aftermath of Katrina and Sandy many standby systems failed to start, further aggravating the storms impact and recovery efforts. The recommendations FEMA published should be noted by users of standby systems located in storm prone areas.



2.0 EXPERIENCE:

The FEMA studies noted the high quantity of standby generator systems that failed to start and/or run satisfactorily during and after the storms had passed. Many critical areas were left without power, even though they had standby generator systems. One of the main problems was the location of the generator system, and lack of protection from wind and high water.

No utility or backup power resulted in the loss of HVAC, shutdown of industrial equipment and major appliances (e.g. refrigerators, freezers, etc.), lighting, computer systems, electrical pumping systems, communications, and alarm systems. These chaotic power losses can result in loss of life at critical care facilities, such as hospitals, diagnostic clinics, etc. Recovery from such disasters is often delayed for several days, even months, before normal conditions return. This can result in total disruption to daily life and inflict huge financial losses.

3.0 CAUSES:

One common failures was due to flooding of the emergency generator or its ancillary equipment. Flooded generators were often found to be installed in basements or at ground level. Such installations can be prone to flooding, especially in predetermined flood areas and coastal sites.

Another cause of damage was the generator system being installed in an unprotected area prone to wind and flying debris.

4.0 ACCESS AND RECOVERY:

Once the generator has failed due to flooding, an extensive delay can occur waiting for the installation to be pumped out and any equipment repaired. Priority will be given to utility distribution damaged by wind. Before the utility or standby system is repaired, the best course is to bring in mobile generators. Critical installations should be linked to rental power services as a final backup.

Another common reason for standby system failure is lack of fuel. Equal consideration should be given to protecting the fuel source as much as the equipment.

5.0 RECOMMENDATIONS:

For new generator installations, as well as existing ones, the generator set supplier should comply with the local code requirements and utility companies in order to meet all appropriate regulations. All local and national building codes, as well as applicable electrical codes, should be met to ensure the safety of site personnel.

In addition to meeting local codes, users of standby generator systems in hurricane prone areas should follow the recommendations of FEMA which were compiled from actual hurricane damage experience.

6.0 FEMA RECOMMENDATIONS:

The emergency generator and its fuel tank should be protected from high winds and flooding. In flood hazard areas the generator, fuel tank, controls, and transfer switches should be mounted and anchored securely above the expected flood level on concrete platforms inside or next to the building in a protective structure and shielded from wind or windborne debris.

All fuel supply and electrical lines must be protected from potential flooding and high wind. Adequate space must be available around the standby generator allowing technicians easy access to conduct regular maintenance. (See diagram on front-page)

7.0 PLANNED MAINTENANCE:

A consistent and regular planned maintenance program should be developed, adopted, and enforced. This will help to alleviate potential generator failures in the future and a customer will stand the best chance of benefitting from this vital emergency power service when it is most needed.

8.0 DISASTER PLAN:

It is very important that a well thought out emergency plan be drawn up and in the hands of all personal that have to deal with emergency electrical power in the case of any disaster. This plan should be practiced and clearly define responsibilities and actions so that no confusion occurs.

9.0 FURTHER INFORMATION:

Useful web sites:

www.fema.gov/small-business-tookit/protect-your-property-or- business-disaster

To fulfill our commitment to be the leading supplier in the power generation industry, the Buckeye Power Sales team ensures they are always up-to-date with the current power industry standards as well as industry trends. As a service, our Information Sheets are circulated on a regular basis to existing and potential power customers to maintain their awareness of changes and developments in standards, codes and technology within the power industry.

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