GENERATOR SAFETY

Your generator is used to provide short-term and long-term emergency and/or stand-by power to your facilities during power outages or cuts. Generators come in many different power and fuel models designed to meet your facility's needs.

GENERATOR SYSTEM CARE should be performed by a manufacturer-approved dealer who is fully trained by the generator manufacturer on proper application and maintenance of their equipment. Generator systems should not be designed, installed, operated or maintained by laypersons.

Misusing or neglecting your generator system can cause loss of life and property from such things as fire and toxic fumes. Protect yourself and your facility by installing, using and maintaining your generator system as recommended in this **Generator Safety Information Sheet** provided by Adventist Risk Management, Inc.

Portable Generators

Generator systems come in a variety of configurations and you will have to select the configuration that best meets your needs. Portable generators can be used for stand-by applications for equipment to operate during power outages/power cuts, planned or unplanned. Portable generators usually have a small kilowatt capacity and are fueled by gasoline. These generators can be stored and pulled out when needed. This will protect your generator from bad weather and keep your generator secured while not being used.

Exterior Generators

Exterior generator systems come in their own weatherproof enclosure and are hard wired to your facility's main electric service equipment through a manual or an automatic transfer switch. The weatherproof enclosures are available with different sound reduction ratings to meet different site requirements, such as residential or being close to a hospital. These generators can run on different fuel sources, such as gasoline, diesel, natural gas and propane gas. Exterior generators are used for both emergency and stand-by applications.

Interior Generators

Generator systems can be installed in a building as long as the building is designed for this purpose. Interior generator systems have more protection from bad weather (heat, cold, sun, rain, etc.), and more security from theft or tampering.

Select the configuration that best meets your needs.

Connecting Your Generator

There are several options for connecting your generator to power your facilities' required loads. Portable stand-by generators can be connected by manufacturer approved power cords or a double throw safety switch. This switch can be temporarily hard wired to the generator system or a permanent pin and sleeve receptacle can be connected to the generator and the switch.

Using Manual Transfer Switches

Manual transfer switches can be used for stand-by, exterior or interior generator systems. During a loss in power someone will have to go to the manual transfer switch and switch its position from the normal power source (electric service) to the stand-by power source (generator). A manual transfer switch allows you to switch on and off the power loads you need to operate before switching over and then starting the generator. Following installation, a written start and stop sequence would be provided to you that explains the proper and safest way to start and stop the system.

Using Automatic Transfer Switches

An automatic transfer switch is needed for an emergency generator system and can be used for a stand-by system if desired. If using an automatic switch, you would not have to transfer the facility load from the normal power source to generator power because the switch has sensors and contacts that will automatically do the transfer. If your facility has both emergency and stand-by loads to be powered by the generator system, separate transfer switches are normally required by your regional authorities.

Before Buying Your Generator

Some generators come with a control panel. Control panels provide many benefits, such as:

- Full diagnostics and alarming of the generator system
- Automatic exercising, load/no load, of the generator
- Contacts for custom load shedding (turning off non-required electrical loads) applications

These are all considerations when selecting a generator system.

Before purchasing a generator system, find out the size, normally measured in kilowatts, you need. An Electrical Engineer can help you determine your site's electrical characteristics and current maximum demand.

After determining your site's needs, the Electrical Engineer will design a generator system in keeping with your region's regulations. It is recommended to upsize your generator by one kilowatt increment to plan for future growth.

The Electrical Engineer will also determine the usage type of generator your site needs. If your generator system will be used to power life safety equipment—such as emergency lighting, fire alarm systems, elevator, etc.—an emergency generator system will be designed. If power for non-life safety equipment is required, a stand-by generator system will be designed. Incorrect design and application can result in an unreliable system, a generator system that does not comply with regional regulation requirements, and may damage your connected equipment.

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Installing Your Generator

Have a licensed electrician install your generator according to your region's requirements. The completed installation shall have two inspections.

1. One inspection shall be performed by a third party inspection service to provide a label on the generator equipment indicating the complete system meets applicable regional requirements. This type of inspection is usually required by the company that insures your facility.
2. The second inspection shall be performed by a manufacturer-approved dealer who is fully trained by the generator manufacturer on proper installation. This dealer shall also perform system commissioning services and initial start-up procedures. These procedures shall include, but are not limited to, checking for damage, fuel connections, engine fluids, engine filters, and proper operation. Complete installation shall maintain the equipment's Underwriters Laboratories (UL), a global independent safety science company, label.

Have a licensed electrician install your generator according to your region's requirements.

Install your generator in a level location as close as is practical to your facility's normal power source. Provide a four-foot or 1.2 meter clear working space around your entire unit to allow for future access for maintenance. Locate your generator exhaust so it is not able to infiltrate nearby structures.

Before Starting Your Generator

A sequence of operation shall be provided for each generator system at installation. Keep these documents at the generator system's point of connection and transfer. These documents will also become part of the Operation and Maintenance Manual for your entire facility. This document will contain contact information of people familiar with the facility's generator system, including the installing contractor and generator manufacturer dealer.

Generator Maintenance and Safety

In addition to using your generator according to manufacturer's instructions, here are a few additional safety and maintenance tips:

- Keep dated operation log sheets with each generator and transfer equipment indicating up-to-date testing and maintenance information.
- Keep access to the generator and transfer equipment neat and orderly and as secure as possible. Laypersons shall not operate any generator system equipment.
- Keep and maintain a fire extinguisher at the generator and connection equipment rated for the types of available fire hazards. Inspect the fire extinguisher annually. An up-to-date inspection tag shall be fastened to each fire extinguisher indicating annual inspection compliance.
- Have an annual inspection of your generator system performed by the manufacturer-approved dealer.
- Have manufacturer-required maintenance performed by the manufacturer-approved dealer to maintain equipment warranty.
- Have repairs to your generator and systems performed by the manufacturer-approved dealer to maintain equipment UL Label and warranty.

ARM Cares

Adventist Risk Management,® Inc. cares about keeping your ministry safe. We offer Property and Equipment Breakdown Insurance options for protecting your ministry. Learn more at **AdventistRisk.org.**

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