

Information Sheet # 87
Nursing Home Applications for Generator Set Systems

Your Reliable Guide for
Generator Maintenance

1.0 Introduction:

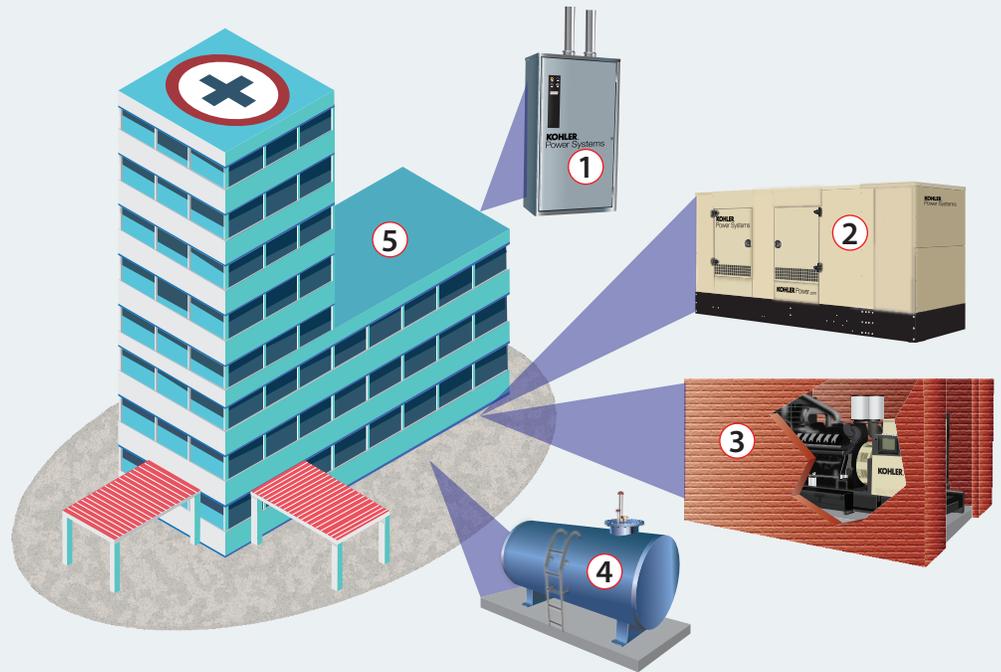
A growing elderly population has increased demand in all communities for Nursing Homes (NH's), and Assisted Living Facilities (ALF's). Elderly residents of NH's and ALF's are particularly vulnerable to power outages. A NH and ALF facility has a duty of care to ensure safe support and care for their residents. In most areas, a facility operating license is contingent on sustaining a certain level of care. As a reliable power supply is critical in sustaining a healthy and safe environment, with adequate heating, cooling and lighting, frequently it is mandated by licensing authorities that NH and ALF facilities are equipped with a standby power system.

Extended power outages, resulting from devastating hurricanes, focused attention on the vulnerability of residents in NH's and ALF's when the power goes out. This information sheet discusses regulation Florida enacted in 2017 for standby generator systems in Nursing Home applications, and why these regulations are likely to be adopted by many other States.

Standby Power to Nursing Home & Assisted Living Facility

Key Points in FL Codes

- 1) Automatic Transfer Switch connected to building power distribution sized to manage cooling loads and other key services
- 2) Outside enclosed generator sets should be in enclosures rated for 200 mph winds
- 3) If open sets are installed outside the facility, they should have a wind barrier built around them
- 4) Fuel stored on-site should allow running to keep building no hotter than 81°F
- 5) A Nursing Home (NH) and Assisted Living Facility (ALF) should have emergency backup power sized to manage AC cooling load to at least no more than 81°F



Codes & Standards Covering Nursing Home Generator Applications

Generator System Specification

Codes & Standards Covering Nursing Home Generator Applications		Generator System Specification	
EPA	Tier 3 for stationary standby power. Mobile to meet Tier 4	Ratings	Standby power rating
NEMA	This covers switchgear boxes and electrical connections	Fuel	Sufficient on-site fuel for 96-hours
Local Codes	Local codes will cover generator use, sound regulations, and construction	Generator End	PMG when high motor loads
UL Codes	2200 This covers entire generator set as a manufacturing standard	Enclosure	Weather and sound attenuated
	142 For above ground storage tanks to specify leak containment and spillage	High Wind	Up to 200 mph wind rating in FL
	891 Safety criteria applicable to electrical switchgear up to 600 volt systems	Alternators	kVA capacity for high Air-con loads
	1008 Standard for Auto Transfer Switches (ATS)	Air Cleaners	Standard
1558 For low voltage power circuit breakers	Controls	Auto start capability. Usually with automatic transfer switch	

To fulfill our commitment to be the leading supplier in the power generation industry, the Loftin Equipment and Bay City Electric Works teams ensure 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.

The installation information provided in this information sheet is informational in nature only and should not be considered the advice of a properly licensed and qualified electrician or used in place of a detailed review of the applicable National Electric Codes, NFPA 99/110 and local codes. Specific questions about how this information may affect any particular situation should be addressed to a licensed and qualified engineer and/or electrician.

2.0 Background to Nursing Home Standby Generator System Regulations:

Hurricane Irma was recorded as a Category 4 storm (131 to 155 mph winds) when it made landfall north of Key West on Sept. 10, 2017. It was the worst weather event since Hurricane Katrina in 2005 and resulted in some 12 million inhabitants losing electrical power in Florida.

Observations from these weather events were:

- 2.1 Not all NH and ALF had standby power** – The Florida governor requested emergency rules requiring NHs and ALFs to acquire alternative power sources.
- 2.2 No clear performance regulations** – Many standby generators were installed with insufficient power to meet AC demand and maintain room temperature below 81°, the maximum for health. Many deaths were heat related.
- 2.3 Inability to Sustain Standby Power Generation** – Large weather events result in extended power outages. Many installations held insufficient storage of fuel to supply standby power before more fuel could be delivered.

3.0 Resulting Regulation - Nursing Home (NH) Rule 59A - 4.1265:

The Agency for Health Care Administration (AHCA) which regulates NH building and fire safety issued a checklist to assess each NH plan and to assist with a plan developed for compliance of the emergency power plan. Once completed, the format has to be submitted to the Local Emergency Management Agency for review and approval before forwarding it to the AHCA Office of Plans and Construction for final approval and implementation.

Specific Rule Details: While it does not specify that a generator is needed to run the HVAC system to cool, thereby allowing each provider flexibility to determine the most appropriate equipment to meet their facilities needs in the event of loss of primary electrical power. However, if portable chillers are used, they must be vented to the outside to avoid heat exhaust flow back into the facility. Any alternative power source must have a minimum of ninety six (96-hours) run time in the event of utility power loss. Indoor air temperatures in resident occupied areas must not exceed 81°F. Each resident must be provided with no less than 30 square feet net of space, or unless plan includes relocating residents to portions of the building where their health, safety, welfare and comfort will be maintained as required by this rule.

4.0 Assisted Living Facility (ALF) Rule 58A – 5.036:

Building and fire safety requirements are regulated by the local authority having jurisdiction, so information must be submitted to the appropriate local authority for approval – generally the building code or fire department officials.

Specific Rules Are:

- 4.1 Provide continuous alternative power source to keep the air temperature below 81°** – As for NHs, ALFs must be provided with an alternative power source, such as a generator, in order to maintain ambient air temperatures at or below 81°F.
- 4.2 Space Restrictions** – As for NHs detailed above.
- 4.3 Generator and Fuel Supply** – The generator and fuel supply (minimum 96-hours capacity stored on site – see below) must be located in an area(s) in accordance with local zoning and the Florida Building Code.
Smaller capacity supply for facility with 16 beds or less must store 48-hours of fuel, while facilities with 17 beds or more must store 72-hours of fuel. Such facilities may utilize portable fuel storage containers.
- 4.4 Evacuation Zone Requirements** – Also, these conditions are applicable to any ALF situated in an evacuation zone, pursuant to Chapter 252, F. S.
- 4.5 Fuel Source** – Note! Piped natural gas is an allowable fuel source and meets requirements.

5.0 Centers for Medicare and Medicaid Services (CMS):

Since many residents are on Medicare or Medicaid, federal rules come into play. CMS states that a facility must develop and implement an Emergency Preparedness Plan. CMS does not recommend the type of alternative energy source to be employed.

6.0 External Sited Power Source:

The Florida Building Code stipulates that any generator installed outside with a high velocity hurricane zone (HVHZ) enclosure must be capable of resisting 200 mph wind speed in accordance with American Society of Civil Engineers requirements. Also, it must meet missile impact requirements and prevent entrance of hurricane debris. An alternative design allows for a three-sided block wall with steel lockable entrance gate, facing away from prevailing wind directions.

7.0 Conclusions and the Influence on other States:

While Florida is the first state to legislate such specific power requirements and regulate maximum indoor ambient temperatures for NH and ALF operations, it is anticipated that other states may follow suit and take steps to ensure the safety and comfort of residents in such facilities. When applying standby generator systems to Nursing Homes and Assisted Living Facilities, the experience gathered by the Floridian authorities in the aftermath of extreme weather events should be used as a guide.



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