

White Paper: Why Healthcare Systems Can't Afford to Skip Load Testing

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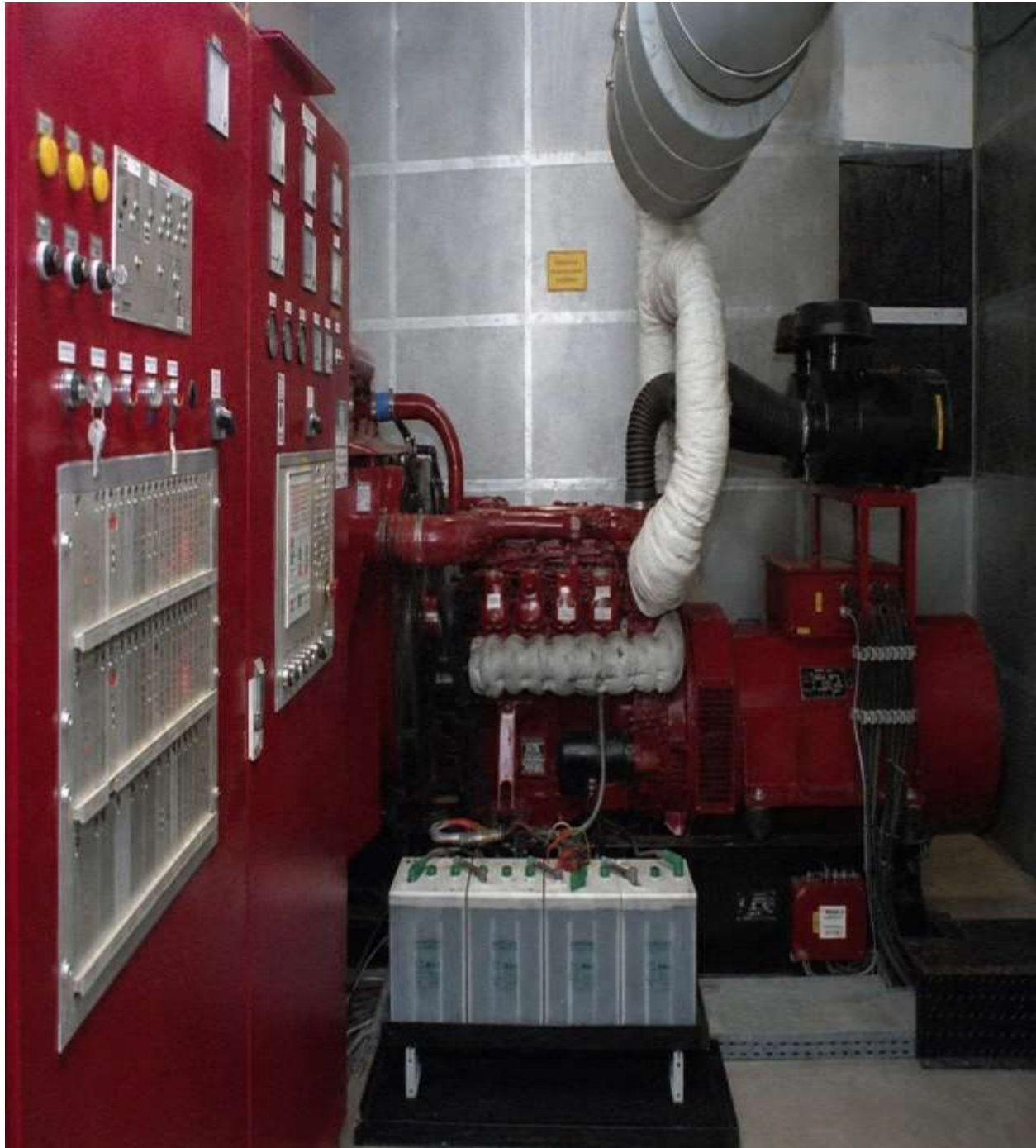


Figure 1: Healthcare facilities rely on load testing

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I. INTRODUCTION

Abstract

Reliable power is quite crucial in healthcare facilities where even a short interruption in the power can significantly go to impact patient care, medical equipment, along with emergency operations. Hospitals are heavily reliant on the backup power system so that they can avail themselves of the uninterrupted operations at the time of the unexpected utility failures. This system makes sure that the performance and routine testing can be done properly so as to ensure that there will be reliable operational efficiency.

This white paper describes how load bank testing helps healthcare facilities verify that emergency power systems can perform properly under real operating conditions.

II. Why Load Testing Is Important in Healthcare Facilities

Hospital facilities have to work around the clock and require an uninterrupted power supply at all times. This is necessary so that the supporting essential departments, including intensive care units, surgical units, laboratories, emergency rooms, and diagnostics, work with no disruption.

If any failure happens in the emergency systems, then it can seriously impact the hospital operations and patient care.

There are some of the failures if the power backup does not perform in a proper way.

- Risks occur, and they become threats to patient safety.
- Critical medical equipment gets shut down.
- Hospital services do not work effectively.
- Concerns for Compliance
- Operational and financial losses may incur.

III. HEALTHCARE COMPLIANCE REQUIREMENTS



Figure 2: Healthcare Compliance Testing

At the time of the emergency power systems, the healthcare facilities must have gone through the strict testing standards. It requires low testing along with the routine inspection so as to make sure that the equipment must be in the operating condition at the time of the emergencies.

Monthly Generator Testing

Under load conditions, the emergency generators have to be tested for a specific duration, as it verifies the operations' reliability.

Transfer Switch Testing

The type of transfer switches, such as automatic and manual, must be assessed on a regular basis. This ensures that there will be a proper transfer of power during emergency power events.

Extended Runtime Testing

Some compliance standards also require long-duration testing. This procedure happens so as to verify the endurance of the generator and keep the stability of the system intact.

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IV. HOW LOAD BANKS SUPPORT COMPLIANCE TESTING

Load banks have the capability to improvise the reliability of emergency power testing and control the electrical load throughout the testing procedure. This allows engineers to evaluate the stability of the backup infrastructure under operating conditions without having to depend upon the entire fluctuating building demand.

Maintaining Required Load Levels

Electrical demand usage in the hospital is not the same all the time, and it changes throughout the day, specifically decreasing during low occupancy or nighttime. During this time, the building load is not enough to generate a demand for efficient generator testing.

Supporting the facilities such as

- Avail the required load capacity for testing.
- Improvise the compliance validation procedures and testing accuracy.
- Maintain steady operation conditions.

Preventing Wet Stacking

Diesel generators usually operate at very low loads for extended durations, due to which wet stacking may occur. In this condition, unburned fuel residue accumulates and builds up inside the exhaust system. Over the duration, such accumulation might impact the long-term performance of the equipment.

Load bank testing helps in minimizing

- Excessive carbon accumulation
- Generator performance efficiency
- Unnecessary problems related to maintenance

V. COMMON APPLICATIONS OF LOAD BANKS

Below are the common load bank applications that are widely utilized for healthcare testing facilities such as

Generator Testing

Generator testing is widely utilized to validate the performance of the fuel system, power output, etc.

UPS System Testing

UPS system testing is the one way to evaluate the performance of a battery, the functionality of an inverter, and more.

HVAC Testing

As load banks are capable of generating heat at the time of the operation. They are highly utilized for testing cooling systems and the performance of the airflow for healthcare facilities.

VI. TYPES OF LOAD BANKS USED IN HEALTHCARE FACILITIES

Below are the testing applications that are utilized for load bank types.

1. Resistive Load Banks
2. Reactive Load Banks
3. Combined Resistive-Reactive Load Banks

VII. CONCLUSION

Power backup reliability is not an exception, but it is an essential parameter for healthcare facilities and patient safety.

The bottom line is:

- Load testing on a regular basis makes sure that the hospitals can ensure that their generators run in a proper way and their cooling equipment runs as per the utility failures.
- Additionally, the reliability of transfer switches and UPS systems remains intact.
- The load bank in healthcare facilities is designed not only to improve the reliability of equipment but also to prevent operational issues and ensure compliance with industry standards.

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