

Operational Inspection and Testing Procedure for Emergency Power Systems in Surgery Centers:

Objective: To conduct routine operational inspections, function tests, and load testing of emergency power systems in accordance with NFPA standards, ensuring reliable performance during critical situations in surgery centers.

Frequency: Operational inspections and testing should be conducted as follows:

- Monthly function tests.
- Quarterly inspections and function tests.
- Annual load testing.

Procedures:

Monthly Operational Function Test:

1. Function Test:

- Simulate a power outage by switching off the line power:
 - If your system is equipped with a bypass switch, cut the utility power by moving the switch lever to the middle position.
 - If your system lacks a bypass switch, turn off the designated line circuit breaker in your building's utility circuit panel.
- Verify that the Automatic Transfer Switch (ATS) automatically switches the load to the battery power source, confirming a seamless transition to backup power.

2. Record Keeping:

- Document the successful completion of the function test.
- Maintain written records of all test activities.

Quarterly Operational Inspection and Testing:

3. Follow the steps outlined in the Monthly Operational Function Test and perform a Visual Inspection.

4. Visual Inspection:

- Inspect batteries, cables, and associated charger/control equipment for cleanliness and overall condition.
- Check for exceptional environmental conditions that could potentially damage or affect the equipment's performance.
- Ensure all connections and terminals are clean and free from any signs of decay or overcharging.

- Verify that all indicator lamps, meters, and controls function correctly.

Annual Load Testing:

5. **Follow the steps outlined in the Monthly Operational Function Test and perform a Visual Inspection.**
6. **Load Testing:**
 - Perform a load test on the emergency power system using a fully rated load bank or actual load.
 - Record the output voltage, battery voltage, and test duration at the beginning and end of the test for each battery set.
 - Check the amperage of the battery cable between the battery bank and the inverters.
 - Check the amperage of the high voltage cables on the load side of the emergency power system.
7. **Record Keeping:**
 - Document load test results, including recorded voltages, duration, and any deviations from the baseline or acceptable range.
 - Update maintenance and testing records to reflect load testing.

Documentation:

8. Maintain a dedicated log or electronic record for each inspection, function test, and load test conducted. Ensure the documentation includes:
 - Date of inspection/testing.
 - Details of visual inspections, function tests, and any identified issues.
 - Results of load testing, including voltages, duration, and any deviations.
 - Signature of personnel conducting the inspection/testing.
 - Accessibility of records to the authority having jurisdiction.

Reference the following table for example testing documentation:

MAINTENANCE SCHEDULE CHECKLIST

Component/Task Description	Frequency	Yes	No	N/A	Date Completed
Transfer Switch:					
Verify load transferred to battery source:	M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Verify load returned to utility source:	M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Visual Inspection:					
Battery Terminals & Cables in Clean Condition:	Q	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Batteries free of visual defect:	Q	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Environmental conditions of all the equipment's contents:	Q	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
All indicator lamps, meters, and controls functioning:	Q	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Load Testing:					
Check float charging voltage:	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Test Recharging charging current:	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Check all cable & terminal temperatures:	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Inspect all circuit breakers/replace all fuses:	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Check Battery terminal voltage (while under load):	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Check high-volt output voltages (while under load):	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Check high-volt load current:	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Check Line power voltage:	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Visually inspect panels & meters:	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

Measure and Record Values

Visually Inspect Contacts: _____

Verify Test Switch: _____

Measure and Record Values: _____

Output AC Volts

Load in Amperes: _____

DC Voltage

Prior to AC Failure: _____

1 minute after AC Failure: _____

5 minutes after restoring AC Input: _____

Charge Current

Prior to AC Failure: _____

5 Minutes after Failure: _____

M: Monthly. Q: Quarterly. A: Annually.

Test performed by: _____

Date: _____/_____/_____