

NFPA 110 Annual Compliance Checklist

Critical Facility Emergency Power System Inspection

Facility: _____ Year: _____ Inspector: _____

1. Generator Set

Item	Description	Pass	Fail	N/A
Load Bank Testing	Load Bank Testing			

Item	Description	Pass	Fail	N/A
Fuel Polishing/Conditioning	Test fuel quality for water, sediment, and microbial contamination; service/polish if required.	■	■	■
Fuel Line Integrity	Inspect fuel lines for cracks, leaks, corrosion, and proper support; verify connections are secure.	■	■	■
Day Tank Operation	Verify day tank fill level, drain valve operation, and fuel gauge accuracy.	■	■	■
Strainer/Filter Condition	Inspect fuel strainers and filters; note pressure drop and replace if necessary.	■	■	■
Fuel Transfer Pump	Test fuel transfer pump operation and verify proper fuel flow to engine.	■	■	■

4. Cooling System

Item	Description	Pass	Fail	N/A
Radiator & Fan	Inspect radiator for leaks, blockage, and corrosion; verify fan clutch/motor operation and blade condition.	■	■	■
Coolant Hoses & Clamps	Check hoses for cracks, bulging, or deterioration; verify clamp tightness and security.	■	■	■
Coolant Concentration & pH	Test coolant freeze/boil protection; verify proper concentration (typically 50/50); check pH within acceptable range.	■	■	■
Fan Belt & Tensioner	Inspect fan belt for cracks, fraying, or glazing; verify proper tension and alignment.	■	■	■
Thermostat Function	Verify thermostat opening/closing temperature and proper coolant circulation.	■	■	■
Overflow Tank	Check overflow tank level and condition; verify no external leaks.	■	■	■

5. Exhaust System

Item	Description	Pass	Fail	N/A
Piping Integrity	Inspect exhaust piping for cracks, corrosion, leaks, and proper support; verify no disconnections.	■	■	■
Exhaust Back-Pressure Check	Measure exhaust back-pressure; verify within manufacturer limits (typically <4-5 in. H ₂ O).	■	■	■
Muffler Condition	Inspect muffler for internal/external corrosion, holes, or leaks.	■	■	■
Silencer/Attenuator	Verify silencer/attenuator function and absence of blockage or debris.	■	■	■
Heat Shielding	Check heat shields for damage, deterioration, and secure attachment.	■	■	■
Exhaust Stack Damper	Test damper operation and proper seating when engine is off (if applicable).	■	■	■

6. Electrical System

Item	Description	Pass	Fail	N/A
Connection Integrity	Inspect all electrical connections for corrosion, looseness, or damage; tighten terminals as needed.	■	■	■
Circuit Breaker Condition	Test breaker operation (trip/reset cycles); verify no signs of overheating or damage.	■	■	■
Voltage & Frequency Output	Measure generator voltage and frequency under rated load; verify within ±5% nameplate.	■	■	■

Item	Description	Pass	Fail	N/A
Insulation Resistance	Perform insulation test (megohm test) on generator windings; verify no low-resistance paths to ground.	■	■	■
Overcurrent Protection	Inspect fuses/breakers for proper sizing and condition; verify tripping mechanism function.	■	■	■
Bonding & Grounding	Verify proper bonding of metal components and ground electrode integrity; test continuity.	■	■	■
Control Wiring	Inspect all control wiring for damage, proper routing, and secure connections.	■	■	■

7. Control Panel

Item	Description	Pass	Fail	N/A
Alarm Functions	Test all alarm functions (low fuel, high temperature, low oil pressure, etc.); verify audible/visual alerts.	■	■	■
Battery Charger Status	Verify battery charger operation; check output voltage and charging current.	■	■	■
Remote Annunciator	Test remote annunciator (if installed) for proper display and communication.	■	■	■
Display & Gauges	Verify meter accuracy (voltmeter, ammeter, frequency counter); test display illumination.	■	■	■
Emergency Stop Function	Test E-stop button operation; verify immediate shutdown of generator.	■	■	■
Panel Enclosure Integrity	Inspect panel enclosure for damage, moisture ingress, or corrosion; verify door seals.	■	■	■

8. Documentation & Compliance Records

Item	Description	Pass	Fail	N/A
Test Logs & Records	Verify annual test logs are complete, dated, and signed by qualified personnel.	■	■	■
Maintenance Records	Review maintenance history; confirm all repairs and component replacements documented.	■	■	■
NFPA 110 8.4.2 Compliance Log	Ensure compliance with NFPA 110 Section 8.4.2 maintenance schedule; document any deviations.	■	■	■
Battery Test Records	Verify annual battery load test results and condition assessment.	■	■	■
Fuel Quality Test Records	Document fuel polishing/conditioning test results and any additives used.	■	■	■
Load Bank Test Results	Maintain records of load bank test performance (power output, voltage, frequency, thermal data).	■	■	■

9. Facility & Site Conditions

Item	Description	Pass	Fail	N/A
Equipment Clearances	Verify minimum clearance around generator, ATS, and fuel tanks for maintenance access and ventilation.	■	■	■
Ventilation & Air Intake	Inspect air intake for blockage, debris, or contamination; verify adequate cooling air circulation.	■	■	■

Item	Description	Pass	Fail	N/A
Fuel Spill Containment	Verify spill containment capacity (110% of largest tank volume) and condition; check drain plug.	■	■	■
Environmental Conditions	Verify temperature, humidity, and ambient conditions within acceptable ranges.	■	■	■
Housekeeping & Safety	Inspect facility for cleanliness, proper signage, fire extinguishers, and removal of hazards.	■	■	■
Security & Access Control	Verify generator room is secure and access is limited to authorized personnel.	■	■	■

Summary

Overall Status: ■ PASS ■ FAIL ■ CONDITIONAL (with remediation plan)

Inspector Signature: _____ **Date:** _____

Next Annual Test Due: _____