Protecting Backup Generators and UPS Systems Against Risk of Fire

Meeting the Challenge with Clean Agent Supplementary Fire Detection and Suppression





Abstract

This paper will demonstrate that a Firetrace Automatic Fire Detection and Suppression System provides effective, reliable, and cost-effective supplementary fire protection for emergency and standby power generators and uninterruptible power supply (UPS) systems. Firetrace systems are FM, CE and UL approved and have been proven effective through actual fire testing.

Introduction

Emergency and standby power generators and uninterruptible power supply (UPS) systems provide backup power for hospitals, nursing homes, and 24-hour care facilities.

A fire that originates in, or emergency knocks power out, generator facility's and/or UPS can spell disaster. Having emergency backup power can literally mean the difference between life and death for hospital patients and assisted living residents who are sick, disabled, or elderly.

Because a fire can happen at any time, it is important to have an automatic fire detection and suppression system that can:

- Ensure life safety;
- Protect mission critical equipment to ensure continuity of operations;
- Comply with codes and standards.

The National Fire Protection Association (NFPA) develops, publishes, and disseminates codes and standards for hospitals and care facilities that minimize the possibility and effects of fire and other risks. These codes and standards are widely adopted in the United States because they protect property and save lives.

In recent years, many hospitals, nursing homes, and 24-hour care facilities have begun to add supplementary "clean agent" fire suppression systems to protect their emergency power generation equipment. These supplementary fire suppression systems, including the Firetrace system, are considered "add-on" fire protection that provides additional protection above and beyond the basic requirements established by the NFPA.

Firetrace clean agent systems utilize colorless, odorless- gases s 200® and 3M™ Novec™ 1230 fire to protection suppress fires. These fluid agents are non-toxic, non-conductive, and non-corrosive; are safe for people, equipment and the environment; and require no cleanup after discharge.

NFPA Codes and Standards for Emergency and Standby Power Systems

NFPA provides codes and standards for emergency power generating equipment for buildings and facilities, specifically:

NFPA 110: Standard for Emergency and Standby Power Systems covers performance requirements for emergency and standby power systems providing an alternate source of electrical power to loads in buildings and facilities in the event that the primary power source fails.

NFPA 101: Life Safety Code addresses those construction, protection, and occupancy features necessary to minimize danger to life from fire, including smoke, fumes, or panic and defines the requirements for what systems the Emergency Power System will supply.

NFPA 99: Health Care Facilities Code establishes criteria to minimize the hazards of fire, explosion, and electricity in health care facilities. It defines several specific features of electric power systems for these facilities.

NFPA codes and standards are enforced by the Authority Having Jurisdiction (AHJ) on a state, local, and federal level.

Note that NFPA codes and standards are constantly evolving and changing; please consult your local AHJ for compliance information.

Causes of Emergency Backup Generators and Uninterruptible Power Supply Fires

- Electrical failures in equipment
- Faulty electrical connections
- Overheated components
- Short circuits
- Malfunctioning power supplies
- Power line surges
- Intermittent electrical arcing
- Gasoline spills
- Fire spreading from adjacent equipment

The Firetrace Solution

A Firetrace automatic fire detection and suppression system is a leading solution for emergency and standby power generators and uninterruptible power supplies (UPS) systems against the risk of fire.

Using the unique, pneumatic Firetrace Detection Tubing (FDT), and clean fire extinguishing agents such -as200®DuPont™and3M™Novec™FM 1230Fire Protection Fluid, a Firetrace system will quickly and reliably detect and suppress a generator or UPS fire right at its source, before it can spread to adjacent equipment or activate an overhead sprinkler system, thus reducing or eliminating equipment damage and downtime.

The Firetrace Solution

- Fast, reliable 24/7 automatic fire detection and suppression Prevents collateral damage due to sprinklers discharging
- Pneumatic operation activates even when emergency backup power fails Installs quickly and easily on new or existing equipment
- Does not interfere with equipment operation and maintenance Clean fire suppression agents require no clean-up
- Non-toxic suppression agents are safe for use in occupied areas Suppression agents will not harm electronic equipment Non-conductive agents are safe to use on powered up equipment
- Allows data center to be back in business almost immediately after a fire An integral component of any Disaster Recovery Plan

Proven Results

Adding a Firetrace automatic fire detection and suppression system is a reliable and cost-effective way to protect mission-critical emergency power generation equipment against the risk of fire and the attendant threats to life and property.

Due to the fast reaction time of the Firetrace system, the potential for damage to emergency power generation equipment is greatly reduced or eliminated. In many cases the equipment can be immediately returned to service after a fire, ensuring that backup power remains available in critical care facilities.

Summary

The Firetrace approach to automatic fire detection and suppression provides superior fire suppression capabilities for emergency power generation equipment though a unique combination of fast reaction time, cost-effective operation, and proven reliability.

Firetrace systems are FM, CE and UL approved and proven through actual fire testing.

