Protecting Computer Rooms and Data Centers Against the Risk of Fire

Meeting the Challenge with Clean Agent
Supplementary Fire Detection and Suppression

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Industrial

Abstract

This paper will demonstrate that a Firetrace Automatic Fire Detection and Suppression System provides effective, reliable, and cost-effective supplementary fire protection for server racks and closets, computer rooms, and data centers.

Introduction

The risk of fire is very real in today's hot-running and overcrowded server racks, computer rooms, and data centers.

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

- Protect life safety;
- Protect property;
- Ensure continuity of operations;
- Comply with codes and standards.

Even a small computer fire can result in many thousands of dollars in lost revenues and productivity; a catastrophic fire can put a company out of business. Statistics show that nearly half of all businesses that lose all their data from a fire go out of business within 90 days; and more than 90 percent of companies that lose all their data for 10 days or more go out of business within one year.

To combat the threat of computer room and data center equipment fires, the National Fire Protection Association (NFPA) has published codes and standards that mandate the installation of an overhead automatic sprinkler system. While water is effective for fighting fires and saving property, it can cause catastrophic damage to computer equipment and electronic data. In many cases the collateral damage from water sprinklers is far more destructive than the fire itself.

As a result, many computer room and data center IT managers protect their equipment with "clean agent" supplementary fire protection systems. Clean agent systems utilize colorless, odorless gases such-200®as andDuPont™3M Novec™FM 1230 fire protection fluid that are non-toxic, non-conductive and non-corrosive. These clean agents will not harm people or equipment and require no cleanup after discharge.

NFPA Codes and Standards for Computer and Data Processing Equipment

The National Fire Protection Association (NFPA) develops, publishes, and disseminates more than 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks.

NFPA provides codes and standards for computer and data processing equipment, specifically:

- NFPA 72 (National Fire Alarm Code);
- NFPA 75 (Standard for Protection of Computer and Data Processing Equipment);
- NFPA 76 (Standard for the Fire Protection of Telecommunications Facilities).

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

Under NFPA 75, server rooms are required to have an automatic water sprinkler system, a fire detection and alarm system, portable fire extinguisher(s) and provision for emergency power down.

Alternative forms of fire protection, such as a Firetrace clean agent fire detection and suppression system, are classified as supplementary fire protection.

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

Causes of Server Room Fires

- Electrical failures in equipment
- Faulty electrical connections
- Overheated electronics
- Short circuits
- Malfunctioning power supplies
- Power line surges
- Intermittent electrical arcing
- Subfloor wiring malfunctions

Other causes include waste basket fires, employee sabotage/vandalism and fires that originate in, and spread from, other rooms in the building.

The Firetrace Solution

A Firetrace automatic fire detection and suppression system is a leading solution for protecting individual server racks, equipment closets, and computer rooms against the risk of fire.

Using the unique, pneumatic Firetrace Detection Tubing (FDT), and clean fire extinguishing agents such -as200®DuPont™and3M™Novec™FM 1230ire F. Protection Fluid, a Firetrace system will quickly and reliably detect and suppress a computer equipment 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.

In addition, Firetrace offers a total flood system that allows entire data centers to be effectively protected without the damaging effects of sprinklers for fires originating outside of the server rack.

The two system types complement one another by adding protection in the areas with an elevated fire risk with a small system that can be easily and inexpensively recharged, while still maintaining complete room protection, no matter where the fire starts.

Firetrace System Advantages

- Fully automatic fire detection and suppression

- Fast and reliable 24/7 protection

- Prevents collateral damage due to sprinklers discharging

- No electricity required – operates even during electrical failures

- Installs quickly and easily

- Protects inside the server rack where fires start

- Does not interfere with equipment operation and maintenance

- Clean suppression agents requires no clean-up

- Non-toxic suppression agents are safe for use in occupied areas

- Suppression agents will not harm electronic equipment or magnetic media

- Non-conductive – safe to use on powered up equipment

- An integral component of any Disaster Recovery Plan

- Virtually no installation limitations

- Simplified design greatly reduces required maintenance and related costs

- System options expand peripheral capabilities

- Allows data center to be back in business almost immediately after a fire Meets NFPA 75 requirements for computer installations needing fire protection

Proven Results

Due to the fast reaction time of the Firetrace system, the potential for damage to computer equipment is reduced or eliminated. In many cases the computer systems can be immediately returned to service.

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

Firetrace capability allows for a constant "24/7 fire watch." Even when the com equipment is unattended and the electricity powered down, the Firetrace automatic fire detection and suppression system will still provide round-the-clock protection against fire.

Summary

Clean agent fire suppressants are an accepted standard of supplementary fire protection for computer equipment. Firetrace's unique approach to clean ag automatic fire detection and suppression provides superior fire suppression capabilities though a combination of fast reaction time, cost-effective operation, and proven reliability.

The Firetrace clean agent automatic fire detection and suppression system has been tested and found to be an effective, reliable and cost-effective option for protecting computer equipment and data against the risk of fire.

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

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