

Fire safety of network cabinets



Overview

Outdated infrastructure, faulty wires, poor maintenance and overloaded circuits are all risk factors for fire.

Key Takeaways

Network cabinets are not inherently fireproof; effective fire safety relies on fire-resistant construction, early detection, and integrated suppression systems. Fire Risks in Network Cabinets

The primary fire hazards in network cabinets come from the electrical equipment inside, including switches, servers, and power distribution units. Overloaded circuits, faulty contacts, or defective components can ignite, while plastics and other combustible materials increase the fire load. Even metal enclosures cannot prevent fires originating from internal equipment, and enclosed spaces can delay detection, allowing heat, smoke, and soot to damage hardware and data before flames appear .

Fire-Resistant Cabinets

Standard network cabinets are designed for organization, ventilation, and physical protection, not fire containment. Fire-resistant cabinets are specifically engineered to withstand heat, contain flames, and protect contents for a defined period, often 30 minutes to several hours depending on the rating. They use fire-resistant materials, smoke-tight doors, and insulating metal alloys, and are tested to standards such as UL 72 or EN 1047-2 . These cabinets provide critical time for suppression systems to activate or for personnel to respond.

Early Detection and Suppression

Early warning is essential because enclosed cabinets can conceal overheating or smoldering fires. Advanced systems include heat-sensitive detection tubes or aspirating smoke detectors integrated directly into the cabinet. These systems can detect fires up to 2000 times more sensitively than conventional detectors and trigger clean-agent extinguishing systems such as FM-200, Novec 1230, or oxygen-extracting gases, which suppress fires without damaging electronic equipment . Modular designs allow protection of multiple cabinets with scalable solutions.

Best Practices for Fire Safety

- Use certified fire-resistant cabinets with appropriate ratings for your environment.
- Install integrated fire detection and suppression systems inside or near cabinets.
- Regularly inspect electrical equipment to prevent overloads and faulty connections.
- Minimize combustible materials inside and around cabinets.
- Ensure compatibility with cooling and cabling systems to avoid compromising other safety functions .

Conclusion

Fire safety in network cabinets is a combination of proper cabinet selection, early detection, and rapid suppression. While standard cabinets offer minimal fire protection, certified fire-resistant enclosures with integrated detection and suppression systems significantly reduce the risk of equipment damage, data loss, and downtime in the event of a fire .

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The reason is that a fire in or around the safety cabinet would prevent people from accessing the emergency escape routes, putting

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In fact, electrical cabinet fire protection is often skimmed on or skipped altogether, in part due to the cost of fire suppression systems.

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