



To understand why there is a need for special hazard fire protection systems it is important to understand what a 'special hazard' is.

Special hazards can be defined as, but not limited to:

- Any area containing equipment or processes of exceptionally high value.
- Any area containing unique or irreplaceable assets (museums, archives, art galleries, records storage).
- Any area or process where the revenue produced, or its function is of greater value than the equipment itself.

Special hazards are everywhere and are very wide ranging. A special hazard can be a building, an area, a room or a piece of equipment. Some examples of places where you would find special hazards include telecommunications, power generation, manufacturing and testing facilities, machinery spaces, and healthcare facilities. These areas are exceptionally challenging from a fire protection standpoint.

Special hazard fire protection systems are designed to:

- Quickly detect an incipient fire or heat condition.
- Suppress fires when sprinklers are not appropriate as the first and only means of fire protection.
- Protect people.
- Mitigate business interruption.
- Limit the loss of assets, information and revenue.

Special hazard fire protection systems include detection and control coupled with a fire suppression system.

Some common fire suppression agents used in these systems include:

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|--------------|----------------|------------|
| Clean Agents | Inert Gases | Water Mist |
| Dry Chemical | Carbon Dioxide | Foam |

Room integrity testing, which is also known as door fan testing, is a simple way to measure the gaseous leakage of an enclosure. This enables a general contractor or building owner to ensure the gaseous fire suppression agent is retained in and restricted to the protected room so it can quickly and effectively extinguish a fire to protect employees, equipment and facilities.

Special hazards can be defined as any area containing equipment, processes or stock of exceptionally high value, contain unique or irreplaceable assets or any area or process where the revenue produced is of greater value than the equipment itself.

A special hazard can be a building, an area, a room or a piece of equipment. Fire protection systems generally have very sensitive smoke detectors and a suppression system that is either water or a gaseous agent.

Traditional fire detectors do not work effectively in rooms that have a large volume of airflow or high ceilings, because they require a significant amount of heat or smoke to be triggered. This places employees, equipment and facilities at greater risk. An alternative is to install air sampling smoke detectors that draw a sample of the environment to a very sensitive optical detector.

Explosion protection is used to protect hazardous environments from massive explosions that are likely to occur in chemical and refining plants, bulk solids handling facilities and pharmaceutical manufacturing. Dust explosions can occur during the conveying, processing, pulverizing and storage of a wide range of solid materials that form a fine dust particulate, such as corn, flour and grain.

Special hazards fire protection requires uniquely trained and qualified personnel to design, install, service, repair and maintain these systems.