



Loss Control Department  
*Technical Information Paper Series*

# Fire Prevention and Protection

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# Fire Prevention and Protection

## *Overview*

Fire represents one of the greatest hazards that an organization can encounter. Each year, several thousand lives are lost to fires, tens of thousands of people are seriously injured, and billions of dollars worth of property is destroyed or damaged by fires.

Smoking materials are the number one cause of civilian fire deaths in residential occupancies, accounting for nearly one-fourth of deaths; most of these are due to the ignition of upholstered furniture, mattresses, or bedding.

Arson and smoking dominate the ignition scenarios of fatal fires in public assembly properties (e.g., educational, health care, or correctional facilities).

Industrial fires often start with defects in the machinery (e.g., processing equipment) or electrical equipment, or from improper handling of flammable liquids and gases.

Most fires can be prevented by the use of proper building materials, identification and protection of special hazards, detection and suppression equipment, education, and the involvement and commitment of the organization's senior management.

## *Emergency Preparedness: Before a Fire*

- Establish an Emergency Preparedness Plan (EPP) that takes prevention, emergency response, and disaster recovery into consideration. If an EPP is already in place, review and update it as needed for fire readiness.
- Designate an Emergency Coordinator and an EPP Team. Assign responsibility to specific employees for advance arrangements to initiate the plan.
- Conduct a hazard assessment and safety appraisal of the facility and its operations.
- Develop smoking regulations that are supported and enforced by management.
- Develop safe procedures for handling and storing flammable gases and liquids.
- Adopt a safe means of performing hot work (e.g., welding).
- Employ good housekeeping methods; do not allow rubbish to accumulate.
- Upgrade the facility to meet current fire codes.
- Use noncombustible and fire-resistant building materials.
- Ensure that a preventive maintenance program for operational equipment (building utilities, processing equipment, and material handling equipment) meets manufacturer's specifications and industry standards.
- Install fire detection systems (e.g., fire alarm systems) and fire suppression systems (e.g., fire extinguishers, sprinkler systems, and carbon dioxide) in the building, particularly in hazardous locations.
- Test all fire and life safety detection and suppression equipment per local and national fire codes.

- Ensure that there is an adequate water supply for the sprinkler system. Evaluate the water supply's volume, pressure, and duration (e.g., pressure, suction, or gravity/elevated tanks). When reservoirs, ponds, rivers, and other similar bodies of water are used to supply the sprinkler system, consider and evaluate any unusual conditions (e.g., droughts, freeze-ups, etc.).
- Meet with the local fire department to familiarize them with special hazards and emergency procedures.
- Develop mutual aid agreements with other companies.
- Keep a list of all vendors' and key customers' telephone numbers and other important contact information available and secured.
- Provide an alert and warning system for all personnel on the premises.
- Plan fire evacuation routes, mark them clearly, and drill employees in using them.
- Inspect all evacuation routes daily.
- Practice your evacuation plan.

***Emergency Response: During a Fire***

- Identify the affected area and sound the alarm.
- Call the public fire department.
- Evacuate all visitors and employees.
- Position security staff at the front entrance of the building (or wherever appropriate) to meet, brief, and escort the fire department.
- When directed by the fire department, notify the electric company to cut off electric power to the facility.

***Emergency Recovery: After a Fire***

- Conduct a roll call of all personnel, including visitors.
- Assess the structure for damage.
- Inspect all utilities and turn off those that are damaged.
- Protect equipment and inventory against further damage from water or exposure to the elements.
- Restore fire detection and suppression systems.
- Arrange for security at the scene.
- Photograph and document the damage.
- Begin salvage operations.

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