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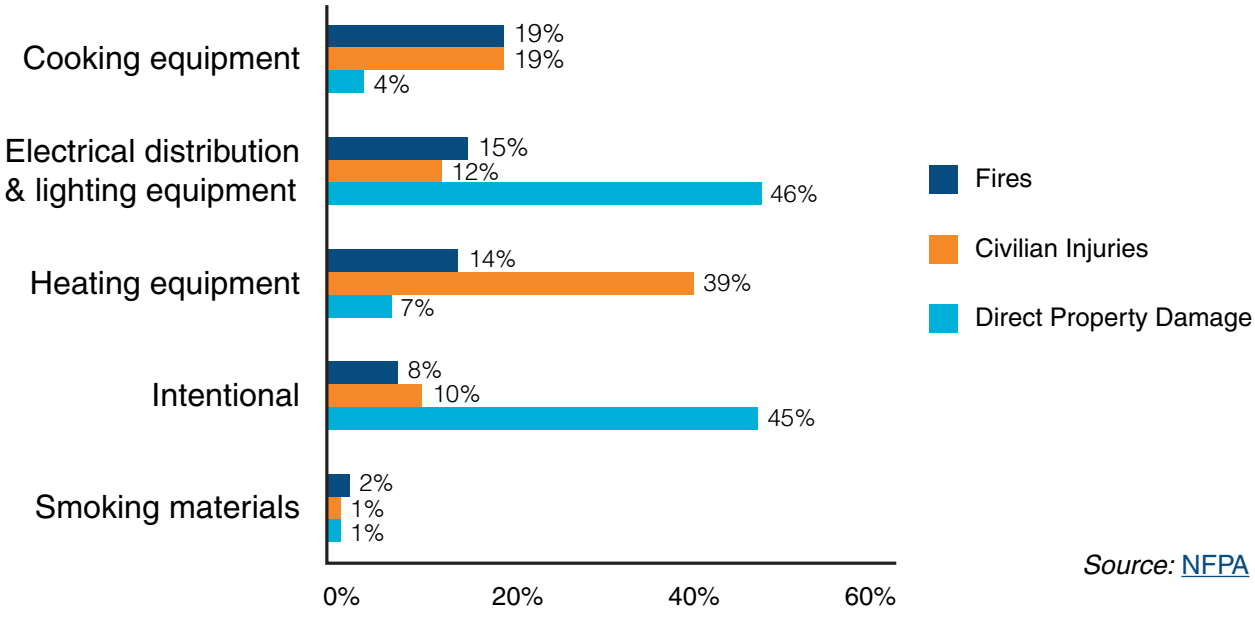
Fire Protection For Buildings Under Construction



It's important to safeguard construction sites from fire around the clock, not just during working hours. According to the National Fire Protection Association (NFPA), local fire departments responded to an estimated 4,440 fires in structures under construction each year between 2017 and 2021.

These incidents resulted in five civilian deaths, 61 injuries, and $376 million in direct property damage annually. Fires in structures undergoing major renovation accounted for another 2,580 fires per year, with eight civilian deaths, 48 injuries, and $107 million in property damage.

Fires in Structures Under Construction by Leading Cause: 2017–2021 Annual Averages



Source: NFPA

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Managing fire risk

You can eliminate or reduce fire-related losses with the proper safeguards. NFPA's Standard for Safeguarding Construction, Alteration and Demolition Operations can help you manage fire risk at your property. The standard is mandatory if your state has adopted NFPA 1, the International Fire Code, or the International Building Code, regardless of job size.

What does NFPA 241 cover?

- Temporary construction, equipment, and storage
- Processes and hazards
- Utilities
- Fire protection
- Safeguarding various operations (e.g., construction and alterations, roofing, demolition, underground operations)



Safety tips

If your property is under construction, undergoing renovation, or about to be demolished, consider the following best practices to help reduce the risk of a fire (or prevent it altogether):

- Submit a site safety plan covering all construct project phases to your local fire marshal's office for approval.
- Develop a policy that mandates there's to be no smoking or cooking on site.
- Develop a hot work policy and a fireguard for cutting, welding, grinding operations, and other metalwork.
- Appoint a certified site safety manager to monitor the site during working hours.
- Appoint a fire watch crew to monitor the building 24 hours a day once construction begins and until all fire protection systems and monitoring equipment are operational.



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- Hold training sessions (use a certified professional) on how to operate a fire extinguisher. Continue these weekly throughout the construction project.
- Reinforce the no smoking and no cooking policy, hot work procedures, and instructions on reporting smoke or fire at least weekly.
- Provide and maintain clear access routes for fire apparatus.
- Schedule fire safety inspections.
- Coordinate pre-project inspections, walk-throughs, and building familiarization tours with the local fire department.
- Store Class I and II flammable and combustible liquids more than 50 feet away from the structure and secure them during and after use.
- Request additional patrols or drive-bys from local law enforcement to help prevent arson.
- Secure the structure when crews are not working, especially during cooler weather.



- Should a fire start, notify first responders immediately. Evacuate the building and clear the area for fire trucks responding to the scene.
    - If a project manager is available, they should meet the incident commander outside the building to provide as much information as possible about the construction project, where the fire started, and any potential risks within the structure.

Fire department perspective

Firefighters approach fires in buildings under construction differently than those in completed residential and commercial structures. Factors such as the project phase, building materials and layout, fire protection systems, and fire severity determine their approach.

Construction sites pose unique risks to first responders. In a wood-framed building, rooms in the framing stage may have exposed timber and no fire separation from room to room. Fire separation acts as a barrier and helps prevent the spread of fire within the building. In a pre-fabricated or high-rise building under construction, varying floors without proper separation can create a chimney effect that can lead to severe damage and charring.

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Once a fire starts, its flow path tends to spread rapidly and can overtake any operational fire protection features. Firefighters will attempt to protect lives, stabilize the incident, and preserve as much property as possible without placing themselves in danger.

Unique dangers for first responders:

- Non-existent or offline fire protection system
- Exposed building materials (e.g., wood-framed buildings)
- Construction equipment blocking access points
- Combustible construction supplies (e.g., gasoline)
- Few or no fire barriers (e.g., fireproof doors)
- Lack of familiarity with property layout



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