



CONSTRUCTION SITE SAFETY GUIDE



Building products regulated as combustible materials under the building code are effective and can offer multifunctional benefits relied upon by architects, builders, and contractors to meet energy code requirements and reduce energy consumption. These materials must comply with multiple regulatory and code requirements and, as with any building product, must be handled appropriately during the construction process.

Fire safety during any construction project is just as important as fire safety after construction is complete. Precautions during new construction, repair, and retrofit projects must be taken seriously. At various stages of construction, materials can be exposed to ignition sources like open flames from welding and cutting torches. It is very important that all construction trades follow appropriate safety precautions, regulations, and site safety protocols when on job sites.

Many code-required fire safety elements such as draft stopping, fire-stopping, thermal barriers, and automatic sprinkler systems are not installed or active during early stages of construction. Therefore, extra care and strict adherence to construction site safety protocols are necessary to minimize the risk of a fire. Adherence to proper storage and staging practices for all building materials is a very important component of job site safety.

Foam plastic insulation, water resistive barriers, and other products regulated as combustible materials under the building code must be handled, stored, and installed in accordance with the manufacturer's specifications, applicable codes and requirements, and the approved building plans. This guide provides a high-level summary of information from various resources that address fire safety practices that can be employed when working around combustible materials. Users of this guide must adapt their practices to reflect individual circumstances as well as any new or updated safety requirements. Always check applicable resources including building codes, local requirements, and the manufacturer's documentation for product storage, handling and installation-specific information and requirements.

HOT WORK

Combustible materials risk exposure to open flame from welding, cutting torches, and other ignition sources during certain construction sequences. Care should be taken to avoid performing hot work around combustible materials. If this is not possible, combustible materials should be protected from exposure to ignition sources while hot work is being performed in accordance with applicable code and safety requirements. The following addresses specific requirements and safety measures that help mitigate risk at job sites.

INTERNATIONAL FIRE CODE REQUIREMENTS

The International Fire Code (IFC), in Chapters 33 and 35, contains provisions for fire safety when welding and other hot work takes place during construction. Among these provisions, Chapter 33 requires compliance with NFPA 241 "Standard for Safeguarding Construction, Alteration, and Demolition Operations" for items not specifically addressed in the IFC. Additionally, for commercial construction, the International Building Code Section 3303.2 "Fire Safety During Construction," refers back to Chapter 33 of the IFC.

OSHA REQUIREMENTS

OSHA has regulations for construction fire safety and the following safety precautions are based upon [OSHA 29 CFR 1910](#). OSHA defines “hot work” as riveting, welding, flame cutting, or any other fire or spark-producing operation (§ 1910.252a).

OSHA 29 CFR 1926.151 – Fire Protection and Prevention includes the following requirements:

- Smoking shall be prohibited at or in the vicinity of operations that constitute a fire hazard and shall be conspicuously posted: “No Smoking or Open Flame.”
- Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.
- The entire storage site shall be kept free from the accumulation of unnecessary combustible materials.
- No combustible material shall be stored outdoors within 10 feet of a building or structure.

OSHA 29 CFR 1910.252 – Welding, Cutting and Brazing includes the following requirements:

- **Supervisors.** Supervisors shall determine the combustible materials and hazardous areas present or likely to be present in the work location. Supervisors shall advise all contractors about flammable materials or hazardous conditions of which they may not be aware.
- **Fire hazards.** If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be taken to a safe place.
- **Guards.** If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks, and slag, and to protect the immovable fire hazards.
- **Relocation of combustibles.** Where practicable, all combustibles shall be relocated at least 35 feet (10.7 m) from the work site. Where relocation is impracticable, combustibles shall be protected with flameproofed covers or otherwise shielded with metal or asbestos guards or curtains.
- **Combustible walls.** Where cutting or welding is done near walls, partitions, ceiling or roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

Finally, **OSHA 29 CFR 1910** has specific requirements regarding fire watches:

- Fire watchers shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:
 - Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation.
 - Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks.
 - Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas including concealed spaces in walls or floors.
 - Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.
 - Fire watchers shall have fire extinguishing equipment readily available and be trained in its use.
 - A fire watch shall be maintained for at least a half hour (30 minutes) after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

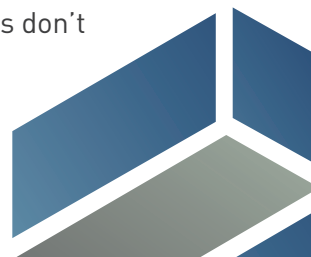
Check the actual codes for complete details as well as any updates.

ADDITIONAL POTENTIAL IGNITION SOURCES

In addition to smoking, welding, and other hot work, there are many other potential ignition sources that can be present on job sites during construction and the installation of the various building materials and systems.

Examples include:

- **Temporary heaters.** Making sure all temporary heaters are listed, in good condition, and used in accordance with the manufacturer’s instructions helps reduce ignition risks. The placement of heaters should be carefully considered to maintain safe distances from combustible materials. Many job sites don’t



allow the use of temporary heaters without appropriate approval and direction from crews and/or security guards to monitor safe operation of the heaters during use.

- **Intentional (Arson).** Unsecured construction sites are at risk of vandalism, theft, and arson. A layered approach to security, including perimeter controls, fencing, lighting, electronic intrusion detection systems, and after-hours on-site security guards can help reduce the risk of unauthorized entry and arson to the site.
- **Cooking.** While having a break area on-site is common, accidental ignitions can be reduced by preventing workers from bringing or using cooking equipment such as grills, hot plates, or small microwave ovens outside of the designated break area approved for cooking.
- **Temporary electrical and lighting.** The National Electric Code provides standards for the installation of temporary electrical service and lighting. Electrical systems and lighting can be kept in good order by maintenance and regular inspection by the electrical contractor.
- **Rechargeable lithium-ion batteries.** Cordless tools and other battery-run equipment present risks of overheating and igniting fires. Risks can be reduced by locating charging stations outside the building under construction and storing them in a safe location. Consult the manufacturer's instructions for appropriate charging procedures using properly installed electrical service and not overloading electrical circuits.

GENERAL PRACTICES

Contractor management has the overall responsibility for the safety and success of construction operations. Achievement of safety and operational goals can be supported if contractors understand the safe use of welding/cutting/brazing equipment on the construction site and take inventory of all potential ignition sources. Establishing areas for cutting and welding operations and designating a responsible individual to authorize hot work permits are other steps commonly taken to further those objectives. Training all workers, especially cutters/welders, in safe work habits for their specific tasks and conducting safety meetings to advise all contractors and subs about fire safety procedures and the location of flammable or hazardous materials also help reduce potential risks.

REFERENCES

- The International Fire Code, Copyright 2020, by International Code Council
- NFPA 241 “Standard for Safeguarding Construction, Alteration, and Demolition Operations” (2022)
- OSHA Regulation 29 CFR § 1910.252 Welding, Cutting and Brazing
- OSHA Regulation 29 CFR § 1910.151 Fire Protection and Prevention



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