



Provided courtesy of the International Code Council's Fire Service Membership Council



Fire Safety on Construction Sites

According to the National Association of State Fire Marshals' (NASFM) Research and Education Foundation, U.S. Fire Departments respond to an annual average of:

- 3,750 fires in structures under construction
- 2,650 fires in structures undergoing major renovation
- 2,130 fires in structures being demolished

This resulted in an annual average of:

- 13 civilian deaths
- 132 civilian injuries
- \$310,000,000 in property damages

Due to the number of construction site fires over the past few years, code officials are starting to implement ways to mitigate the potential loss for these often, large-scale disasters.

The [NASFM](#) has stated, "Many of the fires in buildings under construction are very large, sometimes consuming entire blocks and even spreading beyond the construction site. Not only do these major fires place firefighters and construction personnel at great risk, they jeopardize entire communities." The reason these fires grow so large is due to the lack of fire protection equipment.

The measures that would normally be in place with a completed building are simply not there yet. These high-profile fires also have substantial fuel loads and are consequently difficult to extinguish. All these factors present a challenge for code officers seeking to mitigate risk of fire.

Education about fire prevention is key to battling these construction site fires before they start. The Fire Service Membership Council's Public Awareness Work Group seeks to educate fire prevention officers so they are aware of the potential dangers associated with these sites while also providing AHJ's knowledge they can pass on, along with their own local codes, to the building industry.

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Setting up a construction site safety program

First, know what requirements may already be in place in your AHJ. Some bureaus require permits and inspections for on-site welding or hot works. The International Fire Code (IFC), National Fire Protection Association's Fire Code Standard (NFPA 1) and its Standard for Safeguarding Construction, Alteration, and Demolition Operations Standard (NFPA 241), and the American Wood Council (AWC) have requirements regarding construction site safety. Be aware which edition your AJH has adopted may have a big effect on what is required. Current editions include provisions that are not present in earlier ones.

Once the adopted code provisions are determined, establish a program which includes the responsibilities of all parties involved at the site. Roles include building owners, on-site fire safety managers, emergency response personnel, fire department inspectors, on-site general and sub-contractors.

Make sure that each role has specific and well-defined responsibilities to enforce such as:

- Developing and maintaining a fire safety plan
- Operating a hot work program under the AHJ's permit requirements and associated safety practices
- Maintaining fire apparatus roads and access to on-site fire hydrants at all times
- Conducting general fire prevention checks
- Maintain flammable and combustible material storage appropriately
- Maintaining evacuation plans and planning as the site develops
- Developing a communication standard if a fire does occur

After consideration of these responsibilities, developing a program which will include the areas addressed by current codes and standards will be possible.

Some valuable organizations that have already done substantial work in this area are:

- The Construction Fire Safety Coalition which has training materials, handouts, videos, and [guides](#) for developing incident management plans and code compliance resources.
- The [National Association of State Fire Marshals'](#) Fire Research and Education Foundation has published a 130-page textbook "Bridging the Gap: Construction Site Safety". They have also integrated this into a free, self-paced, [internet training program](#).

