



IAFC POSITION PAPER

Firefighter Safety and Lightweight Construction

Submitted by the Fire & Life Safety Section Board of Directors

Buildings incorporating lightweight construction* are likely to present a severe hazard to firefighter safety, if a fire involves or compromises the integrity of the lightweight structural elements. Due to this fact, the International Association of Fire Chiefs takes the following positions regarding lightweight construction:

Fire Operation Issues

1. Fire departments should provide firefighters with training on the hazards of lightweight construction.
2. Fire departments should develop, implement and enforce written standard operating procedures for fires in buildings that incorporate lightweight construction. The following policies should be included within the SOPs:
 - a. Extreme caution shall be applied in situations where lightweight construction is or could be involved in a fire; the possibility of rapid and sudden structural failure must be anticipated.
 - b. If a fire occurs in a structure that is known or suspected to incorporate lightweight construction, all firefighters operating at the incident scene shall be notified of the potential hazard and operations shall be conducted in a manner that recognizes the risk of rapid structural failure.
 - c. Extreme caution should be exercised when firefighters are allowed to operate directly above or below areas that are supported by lightweight construction that is involved in or has been exposed to a fire. All firefighters shall be immediately withdrawn from such areas if there are indications that lightweight construction is involved in or exposed to the fire.
 - d. Defensive strategy shall be employed in situations where the structural integrity of a building or a portion of a building is in doubt.
3. Fire departments should conduct pre-incident planning inspections of new and existing buildings, including multi-family residential buildings, to identify risk factors and facilitate the development of appropriate strategies and tactics**.

- a. Firefighter safety should be a primary consideration in the pre-incident planning process.
- b. Firefighters should look for and document the presence of lightweight construction while performing pre-incident planning.
- c. Firefighters who are dispatched to a fire incident should be promptly notified of information that indicates the presence of lightweight construction or any other potential hazard.

Fire Prevention Issues

1. The model building and fire codes should only permit the utilization of lightweight construction in a new building, including one-and two-family detached dwelling units, when the building is protected by an automatic fire sprinkler system.
2. The model building and fire codes should require all existing buildings that incorporate lightweight construction to be retrofitted with appropriate fire protection systems when additions or renovations are performed or a change of use occurs. The appropriate fire protection should involve the installation of automatic fire sprinkler systems and/or enclosure of vulnerable structural components within approved fire resistant assemblies.
3. The model building and fire codes should require the installation of automatic fire sprinkler systems in all existing multifamily residential buildings that incorporate lightweight construction.

* The term "lightweight construction" refers to structural systems and assemblies that are fabricated from components that have substantially less mass than traditional construction methods used for equivalent applications. The lightweight components may be assembled from various combinations of combustible and non-combustible materials including wood and steel. Lightweight construction systems that are involved in or exposed to a fire are susceptible to rapid failure. Examples of lightweight construction include lightweight trusses and wood I-beams used in place of solid sawn lumber.

** The pre-incident planning process should include procedures for reporting any fire code violations that are discovered to the appropriate code enforcement authorities.

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