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Fire Safety During Construction and Demolition (CFC Chapter 33)

California Fire Code (CFC) Chapter 33 outlines general fire safety precautions for all structures and all occupancies during construction and demolition operations. In general, these requirements seek to maintain required levels of fire protection, limit fire spread, establish the appropriate operation of equipment, and promote prompt response to fire emergencies. There is an emphasis on owner responsibility and the need to create and implement a site safety plan. Features regulated include fire protection systems, fire fighter access to the site and building, water supply, means of egress, hazardous materials storage and use, and temporary heating equipment and other ignition sources. Fire watches are an important component of this chapter. This chapter correlates with Chapter 33 of the California Building Code (CBC).

Scope:

Shall apply to structures during construction, alteration, or demolition, including those in underground locations. Compliance with NFPA 241 is required for items not specifically addressed herein. (CFC 3301.1)

Purpose:

Prescribes minimum safeguards for construction, alteration, and demolition operations to provide reasonable safety to life and property from fire during such operations. (CFC 3301.2)

Process:

The site safety plan (a separate document from the permit submittal) shall be submitted to and approved by the Office of the State Fire Marshal (OSFM) – Fire and Life Safety Division before a building permit is issued or commencement of any construction activities. Any changes to the site safety plan after a permit has been issued shall be submitted to the OSFM Field Deputy for review and approval. For electronic plan review submittals, it shall be uploaded to the Documents folder within ProjectDox. For paper submittals, it shall accompany the construction drawing set.

Changes within the 2022 CFC:

3303 – Owner’s Responsibility for Fire Protection

3305.5 – Fire Watch

3313 – Water Supply for Fire Protection

Owner’s Responsibility for Fire Protection (CFC 3303.1):

The owner or owner’s authorized agent shall be responsible for the development, implementation and maintenance of an approved, written site safety plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, repair, alteration, or demolition work. The plan shall address the requirements of this chapter and other applicable portions of this code, the duties of staff and staff training requirements.

IFC Commentary - To make sure the plan is in place; it is required prior to a building permit being issued. This is intended to highlight the importance of having a plan and getting it into the hands of the inspectors before the building is actually under construction. Requiring the site safety plan to be reviewed and approved by the fire code official facilitates compliance verification and tracks with inspection report requirements found in NFPA 241.

Fire Watch during Construction (CFC 3305.5.1):

A fire watch shall be provided during nonworking hours for new construction that exceeds 40 feet in height above the lowest adjacent grade at any point along the building perimeter, for new multistory construction with an aggregate area exceeding 50,000 square feet per story or as required by the fire code official.

Access for Fire Fighting (CFC 3311):

Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.

Means of Egress (CFC 3312 & CBC 3310):

Where building construction exceeds 40 feet in height above the lowest level of fire department vehicle access, a temporary or permanent stairway shall be provided. As construction progresses, such stairway shall be extended to within one floor of the highest point of construction having secured decking or flooring.

Water Supply for Fire Protection (CFC 3313 & CBC 3313):

An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible building materials arrive on the site, on commencement of vertical combustible construction and on installation of a standpipe system in buildings under construction.

Supply (3313.2) - When combustible building materials of the building under construction are delivered to a site, a minimum fire flow of 500 gallons per minute shall be provided. The fire hydrant used to provide this fire-flow supply shall be within 500 feet of the combustible building materials, as measured along an approved fire apparatus access lane. Where the site configuration is such that one fire hydrant cannot be located within 500 feet of all combustible building materials, additional fire hydrants shall be required to provide coverage in accordance with this section.

Standpipes (CFC 3314 & CBC 3311):

In buildings required to have standpipes by Section 905.3.1, not less than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at locations adjacent to stairways complying with Section 3312.1. As construction progresses, such standpipes shall be extended to within one floor of the highest point of construction having secured decking or flooring.

Standpipe Supply (3313.5) - Regardless of the presence of combustible building materials, the construction type, or the fire separation distance, where a standpipe is required in accordance with Section 3314, a water supply providing a minimum flow of 500 gallons per minute shall be provided. The fire hydrant used for this water supply shall be located within 100 feet of the fire department connection supplying the standpipe.

Portable Fire Extinguishers (CFC 3316 & CFC 906 & CBC 3309):

Structures under construction, alteration or demolition shall be provided with not less than one approved portable fire extinguisher in accordance with Section 906 and sized for not less than ordinary hazard as follows:

1. At each stairway on all floor levels where combustible materials have accumulated.
2. In every storage and construction shed.
3. Additional portable fire extinguishers shall be provided where special hazards exist including, but not limited to, the storage and use of flammable and combustible liquids.

Flammable and Combustible Liquids (CFC 3306 & CFC Chapter 57):

Storage of flammable and combustible liquids shall be in accordance with Section 5704. The storage, use and handling of flammable and combustible liquids at construction sites shall be in accordance with Section 5706.2. Ventilation shall be provided for operations involving the application of materials containing flammable solvents. Class I and II liquids shall be kept in approved safety containers.

Flammable Gases (CFC 3307 & CFC Chapter 58):

The storage, use and handling of flammable gases shall comply with Chapter 58.

CA Building Code (CBC) Chapter 33 – Safeguards During Construction - looks to the actual construction process. Parameters are provided for demolition and for protecting adjacent property during demolition and construction. CBC Chapter 33 also addresses the need for a fire watch during nonworking hours for certain buildings once the construction has progressed significantly. Issues such as how to provide egress while the building is growing, the timing of standpipe and sprinkler installation, and protection of pedestrians are addressed.