

## CHAPTER 14

# FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

### SECTION 1401 GENERAL

**1401.1 Scope.** This chapter shall apply to structures in the course of construction, alteration, or demolition, including those in underground locations.

**1401.2 Purpose.** This chapter prescribes minimum safeguards for construction, alteration, and demolition operations to provide reasonable safety to life and property from fire during such operations.

**1401.3 Permits.** Permits shall be obtained from the Development Services Department prior to constructing, altering or demolishing any building or structure.

Permits shall be obtained from the Phoenix Fire Department prior to constructing, altering, demolishing or removing from permanent service any fire protection system (see Section 105.7).

**1401.4 Construction documents.** Prior to the installation or modification of permanent or temporary standpipes and permanent or temporary fire department connections, construction documents shall be submitted to the Fire Code Official for approval (see Section 105.2).

### SECTION 1402 DEFINITIONS

**1402.1 Terms defined in Chapter 2.** Words and terms used in this chapter and defined in Chapter 2 shall have the meanings ascribed to them as defined therein.

### SECTION 1403 TEMPORARY HEATING EQUIPMENT

**1403.1 Listed.** Temporary heating devices shall be listed and labeled in accordance with the *International Mechanical Code* or the *International Fuel Gas Code*. Installation, maintenance and use of temporary heating devices shall be in accordance with the terms of the listing.

**1403.2 Oil-fired heaters.** Oil-fired heaters shall comply with Section 603.

**1403.3 LP-gas heaters.** Fuel supplies for liquefied-petroleum gas-fired heaters shall comply with Chapter 38 and NFPA 58.

**1403.4 Refueling.** Refueling operations for liquid-fueled equipment or appliances shall be conducted in accordance with Section 3405. The equipment or appliance shall be allowed to cool prior to refueling.

**1403.5 Installation.** Clearance to combustibles from temporary heating devices shall be maintained in accordance with the labeled equipment. When in operation, temporary heating devices shall be fixed in place and protected from damage, dislodgement or overturning in accordance with the manufacturer's instructions.

**1403.6 Supervision.** The use of temporary heating devices shall be supervised and maintained only by competent personnel.

### SECTION 1404 PRECAUTIONS AGAINST FIRE

**1404.1 Smoking.** Smoking shall be prohibited except in approved areas. Signs shall be posted in accordance with Section 310. In approved areas where smoking is permitted, approved ashtrays shall be provided in accordance with Section 310.

**1404.2 Waste disposal.** Combustible debris shall not be accumulated within buildings. Combustible debris, rubbish and waste material shall be removed from buildings at the end of each shift of work. Combustible debris, rubbish and waste material shall not be disposed of by burning on the site unless approved.

**1404.3 Open burning.** Open burning shall comply with Section 307.

**1404.4 Spontaneous ignition.** Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.

**1404.5 Fire watch.** When required by the fire code official for building demolition that is hazardous in nature, qualified personnel shall be provided to serve as an on-site fire watch. Fire watch personnel shall be provided with at least one approved means for notification of the fire department and their sole duty shall be to perform constant patrols and watch for the occurrence of fire (see Section 113).

**1404.6 Cutting and welding.** Operations involving the use of cutting and welding shall be done in accordance with Chapter 26.

**1404.7 Electrical.** Temporary wiring for electrical power and lighting installations used in connection with the construction, alteration or demolition of buildings, structures, equipment or similar activities shall comply with the *National Electrical Code*.

### SECTION 1405 FLAMMABLE AND COMBUSTIBLE LIQUIDS

**1405.1 Storage of flammable and combustible liquids.** Storage of flammable and combustible liquids shall be in accordance with Section 3404.

**1405.2 Class I and Class II liquids.** The storage, use and handling of flammable and combustible liquids at construction sites shall be in accordance with Section 3406.2. Ventilation shall be provided for operations involving the application of materials containing flammable solvents.

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**1405.3 Housekeeping.** Flammable and combustible liquid storage areas shall be maintained clear of combustible vegetation and waste materials. Such storage areas shall not be used for the storage of combustible materials.

**1405.4 Precautions against fire.** Sources of ignition and smoking shall be prohibited in flammable and combustible liquid storage areas. Signs shall be posted in accordance with Section 310.

**1405.5 Handling at point of final use.** Class I and II liquids shall be kept in approved safety containers.

**1405.6 Leakage and spills.** Leaking vessels shall be immediately repaired or taken out of service and spills shall be cleaned up and disposed of properly.

### SECTION 1406 FLAMMABLE GASES

**1406.1 Storage and handling.** The storage, use and handling of flammable gases shall comply with Chapter 35.

### SECTION 1407 EXPLOSIVE MATERIALS

**1407.1 Storage and handling.** Explosive materials shall be stored, used and handled in accordance with Chapter 33.

**1407.2 Supervision.** Blasting operations shall be conducted in accordance with Chapter 33.

**1407.3 Demolition using explosives.** Approved fire hoses for use by demolition personnel shall be maintained at the demolition site whenever explosives are used for demolition. Such fire hoses shall be connected to an approved water supply and shall be capable of being brought to bear on post-detonation fires anywhere on the site of the demolition operation.

### SECTION 1408 OWNER'S RESPONSIBILITY FOR FIRE PROTECTION

**1408.1 Program superintendent.** The owner shall designate a person to be the Fire Prevention Program Superintendent who shall be responsible for the fire prevention program and ensure that it is carried out through completion of the project. The fire prevention program superintendent shall have the authority to enforce the provisions of this chapter and other provisions as necessary to secure the intent of this chapter. Where guard service is provided, the superintendent shall be responsible for the guard service.

**1408.2 Prefire plans.** The fire prevention program superintendent shall develop and maintain an approved prefire plan in cooperation with the fire chief. The fire chief and the fire code official shall be notified of changes affecting the utilization of information contained in such prefire plans.

**1408.3 Training.** Training of responsible personnel in the use of fire protection equipment shall be the responsibility of the fire prevention program superintendent.

**1408.4 Fire protection devices.** The fire prevention program superintendent shall determine that all fire protection equipment is maintained and serviced in accordance with this code. The quantity and type of fire protection equipment shall be approved.

**1408.5 Hot work operations.** The fire prevention program superintendent shall be responsible for supervising the permit system for hot work operations in accordance with Chapter 26.

**1408.6 Impairment of fire protection systems.** Impairments to any fire protection system shall be in accordance with Section 901.

**1408.7 Temporary covering of fire protection devices.** Coverings placed on or over fire protection devices to protect them from damage during construction processes shall be immediately removed upon the completion of the construction processes in the room or area in which the devices are installed.

### SECTION 1409 FIRE REPORTING

**1409.1 Emergency telephone.** Readily accessible emergency telephone facilities shall be provided in an approved location at the construction site. The street address of the construction site and the emergency telephone number of the fire department shall be posted adjacent to the telephone.

### SECTION 1410 ACCESS FOR FIRE FIGHTING

**1410.1 Required access.** Approved vehicle access for fire fighting and emergency medical service shall be provided to all construction or demolition sites in accordance with Chapter 5.

**1410.1.1 Construction.** Sites shall have a sign posted at the entrance displaying the site address and the verbiage "FIRE DEPARTMENT ACCESS" [see Phoenix Fire Code (PFC) Access Manual Specification].

**1410.2 Key boxes.** Key boxes shall be provided as required by Chapter 5.

### SECTION 1411 MEANS OF EGRESS

**[B] 1411.1 Stairways required.** Where a building has been constructed to a height greater than 50 feet (15 240 mm) or four stories, or where an existing building exceeding 50 feet (15 240 mm) in height is altered, at least one temporary lighted stairway shall be provided unless one or more of the permanent stairways are erected as the construction progresses.

**1411.2 Maintenance.** Required means of egress shall be maintained during construction and demolition, remodeling or alterations and additions to any building.

**Exception:** Approved temporary means of egress systems and facilities.

### SECTION 1412 WATER SUPPLY FOR FIRE PROTECTION

**1412.1 When required.** An approved water supply for fire protection, either temporary or permanent, shall be installed and available for fire fighting prior to combustible material arriving on site in accordance with Section 508.

### SECTION 1413 STANDPIPES

**1413.1 Where required.** Buildings four or more stories in height shall be provided with not less than one standpipe for use during construction. Such standpipes shall be installed when the progress of construction is not more than 35 feet (10 668 mm) in height above the lowest level of fire department access. Such standpipe shall be provided with fire department hose connections at accessible locations adjacent to usable stairs. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.

Every building with two or more stories below grade shall be provided with not less than one standpipe for use during construction. Such standpipes shall be provided with fire department hose connections at accessible locations on each floor level. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring. On each floor, there shall be a 2½-inch (64 mm) valve outlet provided for fire department use.

**1413.2 Buildings being demolished.** Where a building is being demolished and a standpipe is existing within such a building, such standpipe shall be maintained in an operable condition so as to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished. Standpipes shall be either temporary or permanent in nature, and with or without a water supply.

**1413.3 Temporary standpipes.** Temporary standpipes are allowed to be provided in place of a permanent system if designed to furnish 500 gallons of water per minute (32 L/S) at 50 lb per square inch (344 kPa) pressure with a standpipe size of not less than 4 inches (102 mm). All outlets shall be at least 2½ inch (64 mm).

**1413.4 Temporary fire department connections (FDC) and sign.** The standpipe system's FDC shall be provided with Phoenix threads, installed on the outside of the building at street level and in accordance with Chapter 9. A sign stating "TEMPORARY FDC" shall identify the FDC location. The sign shall be installed above the FDC (see PFC Access Manual Specifications). Storage or nonattended vehicles shall not be allowed within a 20-foot (6096 mm) radius of the fire department connections. The 20-foot (6096 mm) clearance shall be maintained at all times. The standpipes shall have at least one standard hose outlet at each floor.

**1413.4.1** The pipe sizes, valves, water supply and other details for new construction shall be in accordance with applicable chapters in this code. If no public water supply is

available, the contractor shall be responsible for providing a temporary water supply.

The temporary fire department connection shall be within 200 feet (60 960 mm) of a working fire hydrant.

**1413.4.2** The standpipes shall be securely supported and restrained at each alternate floor.

**1413.4.3** At each floor level, at least one approved hose valve for attaching fire department hose shall be provided.

**1413.4.4** Valves shall be kept closed at all times and guarded against mechanical injury.

**1413.4.5** A hose valve(s) shall have Phoenix threads for the valve size.

**1413.4.6** The standpipes shall be extended up with each floor and shall be securely capped at the top.

**1413.4.7** Top hose outlets shall be not more than one floor below the highest forms, staging, and similar combustibles at all times.

**1413.4.8** Temporary standpipes shall remain in service until the permanent standpipe installation is complete.

### SECTION 1414 AUTOMATIC SPRINKLER SYSTEM

**1414.1 Completion before occupancy.** In buildings where an automatic sprinkler system is required by this code or the *International Building Code*, it shall be unlawful to occupy any portion of a building or structure until the automatic sprinkler system installation has been tested and approved, except as provided in Section 105.2.6.3.

**1414.2 Operation of valves.** Operation of sprinkler control valves shall be allowed only by properly authorized personnel and shall be accompanied by notification of duly designated parties. When the sprinkler protection is being regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work period to ascertain that protection is in service.

### SECTION 1415 PORTABLE FIRE EXTINGUISHERS

**1415.1 Where required.** 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.

**SECTION 1416  
MOTORIZED EQUIPMENT**

**1416.1 Conditions of use.** Internal-combustion-powered construction equipment shall be used in accordance with all of the following conditions:

1. Equipment shall be located so that exhausts do not discharge against combustible material.
2. Exhausts shall be piped to the outside of the building.
3. Equipment shall not be refueled while in operation or inside buildings.
4. Fuel for equipment shall be stored in an approved area outside of the building.

**SECTION 1417  
SAFEGUARDING ROOFING OPERATIONS**

**1417.1 General.** Roofing operations utilizing heat-producing systems or other ignition sources shall be performed by a contractor licensed and bonded for the type of roofing process to be performed.

**1417.2 Asphalt and tar kettles.** Asphalt and tar kettles shall be operated in accordance with Section 303.

**1417.3 Fire extinguishers for roofing operations.** Fire extinguishers shall comply with Section 906. There shall be not less than one multipurpose portable fire extinguisher with a minimum 3-A 40-B:C rating on the roof being covered or repaired.

**SECTION 1418  
FIRE SAFETY DURING DEMOLITION**

**1418.1** If a building intended to be demolished contains a sprinkler system, such system shall not be rendered inoperative without a permit.

**1418.2** Demolition operations involving the use of cutting and welding shall be done in accordance with Chapter 26.

**1418.3** Combustible waste material shall not be burned at the demolition site unless approved by the Fire Code Official. Combustible materials shall be removed from the site as often as necessary to minimize the hazards there from.

**1418.4** Where in the opinion of the Fire Code Official the demolition site is of a hazardous nature, qualified personnel shall serve as an on-site fire watch (see Section 113).