CHAPTER 33

FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

SECTION 3301
GENERAL

3301.1 Scope. This chapter shall apply to structures in the course of construction, *alteration* or demolition, including those in underground locations. Compliance with NFPA 241 is required for items not specifically addressed herein.

Construction, *alteration* and demolition of fixed guideway transit and passenger rail systems tunnels shall comply with NFPA 130 as amended and WAC 296-155, Part Q, underground Construction.

3301.1(A) Point of Information

Adopted local amendments to NFPA 130 can be accessed at

http://www.seattle.gov/fire/FMO/firecode/nfpaAmendments.htm

Construction, *alteration* and demolition of road tunnels shall comply shall comply with NFPA 502 as amended and WAC 296-155, Part Q, Underground Construction.

3301.1(B) Point of Information

Adopted local amendments to NFPA 502 can be accessed at

http://www.seattle.gov/fire/FMO/firecode/nfpaAmendments.htm

3301.2 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.

3301.3 Alterations and additions. Required exits, existing structural elements, and fire protection devices shall be maintained at all times during alterations, repairs or additions to any building or structure.

Exceptions:

1. When such required elements or devices are being altered, adequate substitute provisions shall be made.
2. Maintenance of such elements and devices is not required when the existing building is not occupied.

SECTION 3302
DEFINITIONS

3302.1 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.

ADDITION.

ALTERATION.

CHANGE OF OCCUPANCY.

EXISTING BUILDING, EXISTING STRUCTURE.

REHABILITATION.

REPAIR.

SUBSTANTIAL ALTERATION.

SECTION 3303
TEMPORARY HEATING EQUIPMENT

3303.1 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.

3303.2 Oil-fired heaters. Oil-fired heaters shall comply with Section 603.

3303.3 LP-gas heaters. Fuel supplies for liquefied-petroleum gas-fired heaters shall comply with Chapter 61 and the *International Fuel Gas Code*.

3303.3.1 LP-gas containers are allowed to be used in buildings or areas of buildings under construction or undergoing alterations as set comply with this section.

3303.3.2 LPG cylinders, equipment, piping, and appliances shall comply with NFPA 58 6.20.2.

3303.3.3 LPG cylinders used and transported for temporary heating in buildings or structures under construction or undergoing substantial alteration and such buildings are not occupied by the public, shall comply with the following:

1. Liquefied-petroleum gas (LPG) fired heaters used for temporary heating in buildings under construction or undergoing substantial alteration shall be located at least 6 ft (1.8 m) from any LPG cylinder.

   Exception: Integral heater-cylinder units specifically designed for the attachment of the heater to the cylinder, or to a supporting standard attached to the cylinder, and designed and installed to prevent direct or radiant heat application to the cylinder shall be exempt from the spacing requirement above.
2. Blower-type and radiant-type units shall not be directed toward any cylinder within 20 ft (6.1 m).
3. If two or more heater-cylinder units of either the integral or non-integral type are located in an unpartitioned area on the same floor, the cylinder(s) of each such unit shall be separated from the cylinder(s) of any other such unit by at least 20 ft (6.1 m).
4. If heaters are connected to cylinders manifolded together for use in an unpartitioned area on the same floor, the total water capacity of cylinders manifolded together serving any one heater shall not be greater than 735 lb (333 kg) [nominal 300 lb (136

kg) propane capacity]. If there is more than one such manifold, it shall be separated from any other by at least 20 ft (6.1 m).

5. Where cylinders are manifolded together for connection to a heater(s) on another floor, the following shall apply:
    a. Heaters shall not be installed on the same floors with manifolded cylinders.
    b. The total water capacity of the cylinders connected to any one manifold shall not be greater than 2450 lb (1111 kg) [nominal 1000 lb (454 kg) propane capacity].
    c. Manifolds of more than 735 lb (333 kg) water capacity [nominal 300 lb (136 kg) propane capacity], if located in the same unpartitioned area, shall be separated from each other by at least 50 ft (15 m).

3303.3.4 The use and transportation of LPG cylinders in the unoccupied portions of buildings or structures under construction or undergoing substantial alteration that are partially occupied by the public shall be approved by the fire code official.

3303.3.5 Cylinders used and transported for repair or minor renovation in buildings frequented by the public during the hours the public normally occupies the building shall comply with the following:

1. The maximum water capacity of individual cylinders shall be 50 lb (23 kg) [nominal 20 lb (9.1 kg) propane capacity], and the number of cylinders in the building shall not exceed the number of workers assigned to the use of the propane.
2. Cylinders having a water capacity greater than 2.7 lb (1.2 kg) shall not be left unattended.

3303.3.6 During the hours the building is not open to the public, cylinders used and transported within the building for repair or minor renovation and with a water capacity greater than 2.7 lb (1.2 kg) shall not be left unattended.

3303.3.7 Portable heaters, including salamanders, shall comply with the following:

1. Portable heaters shall be equipped with an approved automatic device to shut off the flow of gas to the main burner and to the pilot, if used, in the event of flame extinguishment or combustion failure.
2. Portable heaters shall be self-supporting unless designed for cylinder mounting.
3. Portable heaters shall not be installed utilizing cylinder valves, connectors, regulators, manifolds, piping, or tubing as structural supports.
4. Portable heaters having an input of more than 50,000 Btu/hr (53 MJ/hr) shall be equipped with either a pilot that must be lighted and proved before the main burner can be turned on or an approved electric ignition system.

Exceptions:

1. Portable heaters with less than 7500 Btu/hr (8 MJ/hr) input if used with cylinders having a maximum water capacity of 2.7 lb (1.2 kg) and filled with not more than 16.8 oz (0.522 kg) of LP-Gas.

3303.3.((4))8 Refueling. Refueling operations for liquid-fueled equipment or appliances shall be conducted in accordance with Section 5705. The equipment or appliance shall be shut down and allowed to cool prior to refueling.

3303.3.((5))9 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.

3303.3.((6))10 Supervision. The use of temporary heating devices shall be monitored for safe operation and maintained only by properly trained personnel.

3303.3.11 LP-Gas storage. LP-gas cylinders not connected for use shall be stored outside of buildings in locked, ventilated metal cabinets or other approved enclosures located in accordance with Table 6109.12.

3303.3.11.1 Alternative location and protection of storage. Where the provisions of Sections 3303.11 are impractical at construction sites, or at buildings or structures undergoing major renovation or repairs, the storage of containers shall be as required by the fire code official.

3303.3.12 Fire District prohibition. Storage and use of LP-gas containers having an individual capacity in excess of 239 pounds (108.4 kg) water capacity [nominal 100 pounds (48.3 kg) LP-gas] and all stationary installations are prohibited in the Fire District.

SECTION 3304
PRECAUTIONS AGAINST FIRE

3304.1 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.

3304.2 Combustible debris, rubbish and waste. Combustible debris, rubbish and waste material shall comply with the requirements of Sections 3304.2.1 through 3304.2.4.

3304.2.1 Combustible waste material accumulation. Combustible debris, rubbish and waste material shall not be accumulated within buildings.

3304.2.2 Combustible waste material removal. Combustible debris, rubbish and waste material shall be removed from buildings at the end of each shift of work.

3304.2.3 Rubbish containers. ((~~Where rubbish~~)) Rubbish containers with a capacity exceeding 5.33 cubic feet (40 gallons) (0.15 m^3) ((~~are~~)) used for temporary storage of

combustible debris, rubbish and waste material, ((~~they~~)) shall have tightfitting or self-closing lids. Such rubbish containers and lids shall be constructed entirely of noncombustible materials or of combustible materials ((~~that comply~~)) with a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation. ((~~either of the following~~))

Exceptions:

1. Wastebaskets complying with Section 808.
2. Waste accumulated for collection by the City's solid waste utility shall be stored in containers (to include recycling containers) specified in the City's solid waste collection contracts authorized by ordinance.
3. Containers in areas protected by an *approved automatic sprinkler system* installed throughout in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.

((~~1 Noncombustible materials.~~

~~2 Materials that meet a peak rate of heat release not exceeding 300 kW/m^2 when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m^2 in the horizontal orientation.~~))

3304.2.4 Spontaneous ignition. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container. Contents of such containers shall be removed and disposed of daily.

3304.2.5 Trash chutes. Trash chutes used on the exterior of a building shall be of noncombustible construction, or shall be protected in accordance with the following, if of combustible construction:

1. The interior of combustible trash chutes shall be provided with not less than one temporary automatic sprinkler within a recess near the top of the chute.
2. The temporary sprinkler shall be protected by the recess as well as a listed sprinkler guard.
3. The temporary sprinkler shall be connected to any available water supply with a listed fire hose, or a flexible, commercial rubber hose, with a diameter of not less than 19 mm (3⁄4 in.) and a listed flexible connector.
4. The temporary sprinkler shall be protected against freezing where required by the fire code official.

3304.3 Burning of combustible debris, rubbish and waste. Combustible debris, rubbish and waste material shall not be disposed of by burning on the site ((~~unless approved~~)).

3304.4 Open burning. Open burning is prohibited in the City of Seattle. ((~~shall comply with Section 307~~.))

3304.5 Fire watch. When required by the *fire code official* for building demolition, or building construction during working hours 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, extinguishing spot or incipient phase fires and communicating an alarm.

3304.5.1 A fire watch shall be provided during hot work activities and shall continue for a minimum of 30 minutes after the conclusion of the work. The fire prevention program superintendent is authorized to extend the fire watch based on the hazards or work being performed.

Exception: Where the hot work area has no fire hazards or combustible exposures.

3304.5.2 A fire watch shall be posted for the duration of the work and for 2 hours thereafter for torch-applied roofing operations.

3304.5.3 The fire watch shall include the entire hot work area. Hot work conducted in areas with vertical or horizontal fire exposures that are not observable by a single individual shall have additional personnel assigned to fire watches to ensure that exposed areas are monitored.

3304.5.4 Individuals designated to fire watch duty shall have fire-extinguishing equipment readily available and shall be trained in the use of such equipment.

3304.5.5 The individuals responsible for performing hot work and individuals responsible for providing the fire watch shall be trained in the use of portable fire extinguishers.

3304.6 Hot work ((~~Cutting and welding.~~)) Operations involving hot work ((~~the use of cutting and welding~~)) shall be done in accordance with Chapter 35.

3304.6.1 Hot work shall only be conducted in areas designed or authorized for that purpose by the fire prevention program superintendent.

3304.6.2 Hot work shall not be conducted in the following areas unless approval has been obtained from the fire code official:

1. Areas where the sprinkler system is impaired.
2. Areas where there exists the potential of an explosive atmosphere, such as locations where flammable gases, liquids or vapors are present.
3. Areas with readily ignitable materials, such as storage of large quantities of bulk sulfur, baled paper, cotton, lint, dust or loose combustible materials.

3304.6.3 Portable LP-gas containers are allowed to be used to supply approved self-contained torch assemblies or similar appliances. Such containers shall not exceed a water capacity of 21/2 pounds (1 kg).

3304.7 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 NFPA 70.

3304.7.1 All temporary branch circuits shall originate in an approved power outlet or panelboard. Conductors shall be permitted within multi-conductor cord or cable assemblies or as open conductors. All conductors shall be protected by overcurrent devices rated for the ampacity of the conductors. Runs of open conductors shall be located

where the conductors are not subject to physical damage, and the conductors shall be fastened at intervals not exceeding 10 feet (3 m). Each branch circuit that supplies receptacles or fixed equipment shall contain a separate equipment grounding conductor where run as an open conductor.

3304.7.2 Temporary lights shall be equipped with guards to prevent accidental contact with the bulb unless the construction of the reflector is such that the bulb is deeply recessed. Temporary lighting fixtures, such as quartz, that operate at temperatures capable of igniting ordinary combustibles shall be fastened securely so that the possibility of their coming in contact with such materials is precluded. Temporary lights shall be equipped with heavy-duty electrical cords with connections and insulation maintained in safe condition. Temporary lights shall not be suspended by their electrical cords unless such cords and lights have been designed for that purpose. Splices shall have insulation equivalent to that of the cable. Temporary wiring shall be removed immediately upon the completion of the construction or purpose for which the wiring was installed.

3304.8 Site security. Guard service and/or security fences shall be provided where required by the fire code official.

3304.8.1 Where guard service is provided, the guard(s) shall be trained in all of the following:

1. Notification procedures that include calling the fire department and management personnel
2. Function and operation of fire protection equipment
3. Familiarization with fire hazards
4. Use of construction elevators, where provided
5. Any special status of emergency equipment or hazards.

3304.8.2 Where guard service is provided, the fire prevention program superintendent shall be responsible for the guard service.

3304.8.3 Entrances (e.g., doors and windows) to the structure under construction, alteration, or demolition shall be secured where required by the fire code official.

SECTION 3305
FLAMMABLE AND COMBUSTIBLE LIQUIDS

3305.1 ((~~Storage of flammable~~)) Flammable and combustible liquids. Temporary storage and dispensing of Class I and II liquids for private use ~~Storage of flammable and *combustible liquids*~~ at construction sites shall be in accordance with Sections 5701, 5703, 5704 and 5705 except as provided in Sections 3505.1.1 through 3505.1.8.1 ((~~5704~~)).

Exception: Storage and use of fuel oil and containers connected with oil-burning equipment regulated by Section 603 and the International Mechanical Code.

3305.1.1 Combustibles and open flames near tanks. Storage areas shall be kept free from weeds and extraneous combustible material. Open flames and smoking are prohibited in flammable or combustible liquid storage areas. "No Smoking" signs shall be posted in a conspicuous location in each structure or location in which smoking is prohibited. The content, lettering, size, color and location of required "No Smoking" signs shall be approved. Storage areas shall be appropriately posted with markings in accordance with NFPA 704, Standard System for the Identification of the Hazards of Materials for Emergency Response.

3305.1.2 Marking of tanks and containers. Tanks and containers for the storage of liquids above ground shall be conspicuously marked with the name of the product which they contain and the words: FLAMMABLE—KEEP FIRE AND FLAME AWAY. Tanks shall bear the additional marking: KEEP 50 FEET FROM BUILDINGS.

3305.1.3 Containers for storage and use. Metal containers used for storage of Class I or II liquids shall be in accordance with DOTn requirements or shall be of an approved design. Discharge devices shall be of a type that do not develop an internal pressure on the container. Pumping devices or approved self-closing faucets used for dispensing liquids shall not leak and shall be well-maintained. Individual containers shall not be interconnected and shall be kept closed when not in use. Containers stored outside of buildings shall be in accordance with Section 5704 and the International Building Code.

3305.1.4 Temporary tanks. The capacity of above-ground tanks containing Class I or II liquids shall not exceed 10,000 gallons (37 854 L). Tanks shall be of the single-compartment design.

3305.1.4.1 Fill-opening security. Fill openings shall be equipped with a locking closure device. Fill openings shall be separate from vent openings.

3305.1.4.2 Vents. Tanks shall be provided with a method of normal and emergency venting. Normal vents shall also be in accordance with Section 5704.2.7.3. Emergency vents shall be in accordance with Section 5704.2.7.4. Emergency vents shall be arranged to discharge in a manner which prevents localized overheating or flame impingement on any part of the tank in the event that vapors from such vents are ignited.

3305.1.4.3 Location. Tanks containing Class I or II liquids shall be kept outside and at least 50 feet (15 240 mm) from buildings and combustible storage. Additional distance shall be provided when necessary to ensure that vehicles, equipment and containers being filled directly from such tanks will not be less than 50 feet (15 240 mm) from structures, or other combustible storage.

3305.1.4.4 Locations where above-ground tanks are prohibited. The storage of Class I and II liquids in above-ground tanks is prohibited within the limits established by law as the limits of districts in which such storage is prohibited.

3305.1.5 Type of tank. Tanks shall be provided with top openings only or shall be elevated for gravity discharge.

3305.1.5.1 Tanks with top openings only. Tanks with top openings shall be mounted as follows:

1. On well-constructed metal legs connected to shoes or runners designed so that the tank is stabilized and the entire tank and its supports can be moved as a unit; or
2. For stationary tanks, on a stable base of timbers or blocks approximately 6 inches (152 mm) in height which prevents the tank from contacting the ground.

3305.1.5.1.1 Pumps and fittings. Tanks with top openings only shall be equipped with a tightly and permanently attached, approved pumping device having an approved hose of sufficient length for filling vehicles, equipment or containers to be served from the tank. Either the pump or the hose shall be equipped with a padlock to its hanger to prevent tampering. An effective anti-siphoning device shall be included in the pump discharge unless a self-closing nozzle is provided. Siphons or internal pressure discharge devices shall not be used.

3305.1.5.2 Tanks for gravity discharge. Tanks with a connection in the bottom or the end for gravity-dispensing liquids shall be mounted and equipped as follows:

1. Supports to elevate the tank for gravity discharge shall be designed to carry all required loads and provide stability.
2. Bottom or end openings for gravity discharge shall be equipped with a valve located adjacent to the tank shell which will close automatically in the event of fire through the operation of an effective heat-activated releasing device. Where this valve cannot be operated manually, it shall be supplemented by a second, manually operated valve. The gravity discharge outlet shall be provided with an approved hose equipped with a self-closing valve at the discharge end of a type that can be padlocked to its hanger.

3305.1.6 Spill control drainage control and diking. Indoor storage and dispensing areas shall be provided with spill control and drainage control as set forth in Section 5703.4 when the quantity exceeds 30 gallons of Class I flammable liquids or 120 gallons of Class II combustible liquids. Outdoor storage areas shall be provided with drainage control or diking as set forth in Section 5704.2.10 when the quantity exceeds 660 gallons aggregate of Class I and II flammable and combustible liquids.

Exception: Spill control and diking is not required for listed secondary containment tanks.

3305.1.6.1 Leakage and spills. Leaking vessels shall be immediately repaired or taken out of service and spills shall be cleaned up and disposed of properly.

3305.1.7 Portable fire extinguishers. Portable fire extinguishers with a minimum rating of 20-B:C and complying with Section 906 shall be provided where required by the fire code official.

3305.1.8 Dispensing from tank vehicles. Where approved, liquids used as fuels are allowed to be transferred from tank vehicles into the tanks of motor vehicles or special equipment, provided:

1. The tank vehicle's specific function is that of supplying fuel to motor vehicle fuel tanks.
2. The dispensing hose does not exceed 100 feet (30 480 mm) in length.
3. The dispensing nozzle is an approved type.
4. The dispensing hose is properly placed on an approved reel or in a compartment provided before the tank vehicle is moved.
5. Signs prohibiting smoking or open flames within 25 feet (7620 mm) of the vehicle or the point of refueling are prominently posted on the tank vehicle.
6. Electrical devices and wiring in areas where fuel dispensing is conducted are in accordance with NFPA 70.
7. Tank vehicle-dispensing equipment is operated only by designated personnel who are trained to handle and dispense motor fuels.
8. Provisions are made for controlling and mitigating unauthorized discharges.

3505.1.8.1 Location. Dispensing from tank vehicles shall be conducted at least 50 feet (15 240 mm) from structures or combustible storage.

3305.2 ((~~Class I and Class II liquids~~)) Floor surfacing and finishing operations. ((~~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~~)) ((~~materials containing flammable solvents~~)) Floor surfacing and finishing operations exceeding 350 square feet (33 m2) and using Class I or II liquids shall be in accordance with Section 2410.

3305.3 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.

3305.4 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.

3305.5 Handling at point of final use. Class I and II liquids shall be kept in *approved* safety containers.

3305.6 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 3306
FLAMMABLE GASES

3306.1 Storage and handling. The storage, use and handling of flammable gases shall comply with Chapter 58.

3306.2 Cleaning with flammable gas. Flammable gases shall not be used to clean or remove debris from piping open to the atmosphere.

3306.2.1 Pipe cleaning and purging. The cleaning and purging of flammable gas piping systems, including cleaning new or existing piping systems, purging piping systems into service and purging piping systems out of service, shall comply with NFPA 56.

Exceptions:

1. Compressed gas piping systems other than fuel gas piping systems where in accordance with Chapter 53.
2. Piping systems regulated by the *International Fuel Gas Code*.
3. Liquefied petroleum gas systems in accordance with Chapter 61.

SECTION 3307
EXPLOSIVE MATERIALS

3307.1 Storage and handling. *Explosive* materials shall be stored, used and handled in accordance with Chapter 56 and NFPA 495.

3307.2 ((~~Supervision~~)) Blasting. Blasting operations shall be conducted only by approved, competent operators familiar with the required safety precautions and the hazards involved and in accordance with Chapter 56 and NFPA 495.

3307.2.1 Before approval to do blasting is issued, the applicant shall obtain and provide documentation of liability insurance in accordance with Section 105.3.9.

((~~3307.3 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 3308
OWNER'S RESPONSIBILITY FOR FIRE PROTECTION

3308.1 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.~~))

3308.2 Prefire plans. The fire prevention program superintendent shall develop and maintain a((~~n *approved*~~)) prefire plan. ((~~in cooperation with the fire chief.~~)) When required by the fire code official, the prefire plan shall be submitted for approval. The ((~~fire chief and the~~)) *fire code official* shall be notified of changes affecting the utilization of information contained in such prefire plans.

3308.2.1 Prefire plan contents. The prefire plan shall contain the following information:

1. Communication and pre-planning with the fire department.
2. Procedures for reporting emergencies to the Fire department.
3. Procedures for emergency notification, evacuation and/or relocation of all persons in the building under construction and on the site.
4. Procedures for hot work operations, management of hazardous materials and removal of combustible debris and maintenance of emergency access roads.
5. Security measures to prevent unauthorized people from gaining access to the site
6. Installation of new fire protection systems, where applicable, as construction progresses.
7. Floor plans identifying the locations of exits, exit stairs, exit routes and portable fire extinguishers.
8. Site plans identifying the designated exterior assembly areas for each evacuation route.
9. Site plans identifying required fire apparatus access roadways and on-site fire hydrants.
10. The name and contact phone number of the person(s) responsible for compliance with the Fire Protection Plan.

3308.3 Training. Training of responsible personnel in the use of fire protection equipment shall be the responsibility of the fire prevention program superintendent.

3308.4 Fire protection devices. The fire prevention program superintendent shall determine quantity and type of fire protection equipment and 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*.~~))

3308.5 Hot work operations. The fire prevention program superintendent shall be responsible for supervising the permit system for hot work operations in accordance with Chapter 35.

3308.6 Impairment of fire protection systems. ((~~Impairments to any *fire protection system* shall be in accordance with Section 901.~~)) Where a fire protection system is out of service, the procedures detailed in Administrative Rule 9.02.14, Impaired Fire Protection Systems and any future revisions of this rule adopted by the fire code official shall be implemented.

3308.6.1 The fire prevention program superintendent shall be the impairment coordinator to comply with the requirements of this section. In the absence of the fire prevention program superintendent, the building owner shall be considered the impairment coordinator.

3308.7 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.

3308.8 Self-inspections. The fire prevention program superintendent shall be responsible to implement a weekly self-inspection program. Records of the inspections shall be maintained and made available to the fire code official upon request.

3308.8.1 Self-inspection content. The self-inspection program shall include verification of the following:

1. Provision, location and maintenance of fire protection equipment.
2. Provision of appropriate safety and warning signs
3. Adequate housekeeping and waste disposal practices.
4. Verification that all applicable permits have been obtained.
5. Adequate precautions used for hazardous activities such as hot work, blasting, flammable liquid storage and use.

SECTION 3309
FIRE REPORTING

3309.1 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 3310
ACCESS FOR FIRE FIGHTING

3310.1 Required access. Approved ((~~vehicle~~)) fire apparatus access ((~~for fire fighting~~))shall be provided to all construction or demolition sites at the start of the project and maintained until completion. Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6096 mm), exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 14 feet.

Fire apparatus access shall be provided to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. Fire apparatus ((~~Vehicle~~)) access shall be provided to within 100 feet (30 480 mm) of temporary or permanent fire department connections. ((~~Vehicle~~)) Fire apparatus access shall be provided by either temporary or permanent roads, capable of supporting vehicle loading under all weather conditions. ((~~Vehicle~~)) Fire apparatus access shall be maintained until permanent fire apparatus access roads are available. "No parking" signs or other appropriate notices, or both, prohibiting obstruction shall be provided and shall be maintained.

3310.2 Key boxes. ((~~Key boxes shall be provided as required by Chapter 5.~~)) Where access to or within a structure or an area is restricted because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the fire code official is authorized to require a key box to be installed in an approved location. The key box shall be of an approved type and shall contain keys to gain necessary access as required by the fire code official.

3310.3 Hoists and Elevators. Where hoists and elevators provide the only efficient means of transporting hose and other cumbersome fire-fighting equipment to upper floors, they shall be available to the fire department whenever necessary.

SECTION 3311
MEANS OF EGRESS

[BE] 3311.1 Stairways required. Where a building has been constructed to a *building height* of 50 feet (15 240 mm) or four stories, or where an existing building exceeding 50 feet (15 240 mm) in *building height* is altered, not less than one temporary lighted *stairway* shall be provided unless one or more of the permanent *stairways* are erected as the construction progresses.

3311.2 Maintenance. ((~~Required *means of egress* shall be maintained during construction and demolition, remodeling or *alterations* and additions to any building.~~)) Buildings, or portions of buildings, shall be permitted to be occupied during construction, repair, alterations, or additions only where required means of egress are in place and continuously maintained for the portion occupied or where approved alternative life safety measures are in place.

Exception: Existing means of egress need not be maintained where ((~~*Approved*~~)) temporary *means of egress* systems and facilities approved by the building code official are provided.

3311.3 Stairway floor number signs. Temporary stairway floor number signs shall be provided in accordance with the requirements of Section 1022.8.1.

3311.4 Flammable or explosive substances or equipment for repairs or alterations shall be permitted in a building while the building is occupied if the condition of use and safeguards provided do not create any additional danger or impediment to egress beyond the normally permissible conditions in the building.

SECTION 3312
WATER SUPPLY FOR FIRE PROTECTION

3312.1 When required. An *approved* water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material arrives on the site.

3312.2 Where underground water mains and hydrants are to be provided, they shall be installed, completed, and in service prior to commencing construction work on any structure.

3312.3 Free access from the street to fire hydrants and to outside connections for standpipes, sprinklers, or other fire

extinguishing equipment, whether permanent or temporary, shall be provided and maintained at all times.

3312.4 Protective pedestrian walkways shall not be constructed so that they impede access to hydrants.

3312.5 No material or construction shall interfere with access to hydrants, fire department connections, or fire extinguishing equipment.

SECTION 3313
STANDPIPES

3313.1 Where required. 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 (12 192 mm) in height above the lowest level of fire department ((~~vehicle~~)) apparatus access. ((~~Such standpipe shall be provided with fire department hose connections at accessible locations adjacent to usable stairways. Such standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring.~~))

3313.1.1 The standpipes shall be provided with conspicuously marked and readily accessible fire department connections on the outside of the building at the street level and shall have at least one standard hose outlet at each floor. The standpipes shall be securely supported and restrained at each alternate floor.

3313.1.2 At least one approved hose valve for attaching fire department hose shall be provided at each intermediate landing or floor level in the exit stairway, as determined by the authority having jurisdiction. Valves shall be kept closed at all times and guarded against mechanical injury.

3313.1.3 The standpipes shall be extended up with each floor and shall be securely capped at the top. Top hose outlets shall be not more than one floor below the highest forms, staging, and similar combustibles at all times.

((~~**3313.2 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.~~))

3313.((~~3~~))2 Detailed requirements. Standpipes shall be installed in accordance with the provisions of Section 905.

Exception: Standpipes shall be either temporary or permanent in nature, and with or without a water supply, provided that such standpipes comply with the requirements of Section 905 as to capacity, outlets and materials.

SECTION 3314
AUTOMATIC SPRINKLER SYSTEM

3314.1 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 105.3.4~~)) unless approved by the building code official.

3314.1.1 The provision of 3314.1 shall not prohibit occupancy of the lower floors of a building, even where the upper floors are in various stages of construction or protection, provided the following conditions are satisfied:

1. The sprinkler protection of the lower occupied floors is completed and tested in accordance with 3314.1.
2. The lower floor sprinkler protection is supplied is such a manner that it's water supply does not have to be shut-off to facilitate the sprinkler system installation on the upper floors, except for a one time closure to complete the riser installation.

3314.2 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~~)) who have obtained the proper certificate from the fire code official in accordance with Administrative Rule 9.01.15, Certification for Installing, Maintaining and Testing Life Safety Systems and Equipment, and any future revision of this rule adopted by the fire code official. The Seattle Fire Department must be notified in accordance with Administrative Rule 9.04.14, Impaired Fire Protection Systems and any future revision of this rule adopted by the fire code official if a planned or emergency impairment is anticipated to take a system out of service for more than eight hours. 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 3315
PORTABLE FIRE EXTINGUISHERS

3315.1 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*.
4. In every room or space within the building used for storage, a dressing room, or a workshop.
5. Temporary enclosures shall be equipped with a minimum of one fire extinguisher suitable for all classes of fires that are expected inside the enclosure located so that travel distance to a fire extinguisher does not exceed 50 ft.

6. A minimum of one portable fire extinguisher complying with Section 906 and with a minimum 2-A:20-B:C rating shall be readily accessible within 30 feet (9144 mm) of the location where hot work is performed.

SECTION 3316
MOTORIZED CONSTRUCTION EQUIPMENT

3316.1 Conditions of use. Internal-combustion-powered construction equipment, such as air compressors, hoists, derricks, pumps, and similar devices, 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. A clearance of at least 9 in. (230 mm) shall be maintained between such piping and combustible material.
3. ((~~Equipment~~)) Internal-combustion-powered equipment shall ((~~not be refueled while in operation~~)) be shut down and allowed to cool sufficiently prior to refueling.
4. Fuel for equipment shall be stored in an *approved* area outside of the building.

SECTION 3317
SAFEGUARDING ROOFING OPERATIONS

3317.1 General. Roofing operations utilizing heat-producing systems or other ignition sources shall be conducted in accordance with Sections 3317.2, ((~~and~~)) 3317.3 and Chapter 35.

3317.2 Asphalt ((~~and~~)) (tar) kettles. Asphalt ((~~and~~)) (tar) kettles shall be operated in accordance with Section ((~~303~~)) 3317.2.1 through 3317.2.8.

3317.2.1 Asphalt (tar) kettles shall not be located within 20 feet (6096 mm) of any combustible material, combustible building surface or any building opening and within a controlled area identified by the use of traffic cones, barriers or other approved means.

3317.2.2 Asphalt (tar) kettles and pots shall not be utilized inside or on the roof of a building or structure. Roofing kettles and operating asphalt (tar) kettles shall not block means of egress, gates, roadways or entrances. In no case shall kettles be closer than 10 feet (3000 mm) from exits or means of egress.

Exception: Rubberized asphalt melters are allowed to be utilized on the roofs of a building or structure.

3317.2.3 Fuel containers shall be located at least 10 feet (3048 mm) from the burner.

Exception: Containers properly insulated from heat or flame are allowed to be within 2 feet (610 mm) of the burner.

3317.2.4 An operating kettle shall be attended by a minimum of one employee knowledgeable of the operations and hazards. The employee shall be within 25 feet (7600 mm) of the kettle and have the kettle within sight. Ladders or similar obstacles shall not form a part of the route between the attendant and the kettle.

3317.2.5 Hi-boys shall be constructed of noncombustible materials. Hi-boys shall be limited to a capacity of 55 gallons (208 L). Fuel sources or heating elements shall not be allowed as part of a hi-boy.

3317.2.6 Asphalt (tar) kettles shall be equipped with tight-fitting lids that can be closed by means of gravity constructed of steel having a thickness of not less than No. 14 manufacturer's standard gauge [0.075 in. (2 mm)].

3317.2.7 Roofing kettles shall be constructed of noncombustible materials.

3317.2.8 Used roofing mops and rags shall be cleaned of excessive asphalt and stored away from the building and combustible materials. Discarded roofing mops and rags shall not be in contact with combustibles.

3317.2.9 Fuel containers that operate under air pressure shall not exceed 20 gallons (76 L) in capacity and shall be approved.

3317.3 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 3318
DEMOLITION

3318.1 Construction documents. Construction documents and a schedule for demolition shall be submitted where required by the building code official. Where such information is required, no work shall be done until such construction documents or schedule, or both, are approved.

3318.2 Pedestrian protection. The work of demolishing any building shall not be commenced until pedestrian protection is in place as required by Chapter 33 of the Building Code and the Street Use Ordinance, Seattle Municipal Code Title 15.

3318.3 Means of egress. A horizontal exit shall not be destroyed unless and until a substitute means of egress has been provided and approved.

3318.4 Standpipes. Where a building is being demolished and a standpipe is existing within such a building, such standpipe shall be maintained in an operable condition in conformity with the progress of demolition activity in such a manner 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.

3318.5 Demolition using explosives. If explosives are used in demolition work (implosion), hose lines, at least two of 1 1/2 in. diameter or 2 1/2 in. diameter shall be provided in the immediate vicinity of the demolition site during the actual detonation for use by demolition personnel. The required hose lines shall be connected to an approved water supply and shall be of sufficient length to be capable of extinguish-

ing any small fire anywhere on the demolition site after detonation.

3318.6 Underground tanks. When demolition occurs, all underground tanks on the site shall either be removed or filled, as required by this code.

3318.7 Utility connections. Service utility connections shall be discontinued and capped in accordance with requirements of the governing utility or agency including, but not limited to, Seattle Public Utilities, Seattle Department of Transportation, Seattle Department of Planning and Development, Seattle Fire Department, Seattle City Light, Puget Sound Energy, and Qwest Communications.

3318.8 Removal of hazardous and combustible materials. All asbestos and other hazardous material shall be removed prior to demolition, in accordance with regulations of the Environmental Protection Agency, the Puget Sound Clean Air Agency, and other pertinent agencies. Combustible waste shall be removed in accordance with the International Fire Code.