

15.3 Evaluator Qualifications. The fire department service delivery concurrency evaluation shall be prepared by a person with qualifications acceptable to the AHJ.

15.4 Fire Department Service Delivery Concurrency Evaluation Documentation.

15.4.1 The fire department service delivery concurrency evaluation shall include, but not be limited to, the following:

- (1) The current level of service for fire protection, emergency medical, and prevention services
- (2) The post-development level of service for fire protection, emergency medical, and prevention services
- (3) Mitigation recommendations if the level of service in the post-development condition falls below the current level of service
- (4) Short- and long-term funding sources for implementation of the mitigation recommendations

15.4.2 The fire department service delivery concurrency evaluation shall be provided in a format approved by the AHJ.

15.4.3 The fire department service delivery concurrency evaluation shall utilize data sources and standards approved by the AHJ.

15.5 Independent Review. The AHJ shall be permitted to require an approved, independent third-party evaluation of the fire department service delivery concurrency evaluation at the expense of the developer.

15.6 Approval.

15.6.1 The AHJ shall make the final determination as to whether the level of service objectives have been met for the proposed development and, if applicable, the mitigation strategies are funded and appropriate.

15.6.2 If a fire department service delivery concurrency evaluation is required by the AHJ, development shall not proceed until the report has been accepted by the AHJ.

Chapter 16 Safeguarding Construction, Alteration, and Demolition Operations

16.1 General Requirements.

16.1.1 Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, and this chapter.

16.1.2 A fire protection plan shall be established where required by the AHJ.

16.1.3* In buildings under construction, adequate escape facilities shall be maintained at all times for the use of construction workers. Escape facilities shall consist of doors, walkways, stairs, ramps, fire escapes, ladders, or other approved means or devices arranged in accordance with the general principles of Chapter 14 and NFPA 101, *Life Safety Code*, insofar as they can reasonably be applied to buildings under construction. [101:4.6.10.2]

16.1.4 Fire department access roads provided in accordance with 18.2.3 shall be provided at the start of a project and shall be maintained throughout construction.

16.1.5 Permanent fire department access road markings shall not be required until the building is complete or occupied for use.

16.2 Processes and Hazards.

16.2.1 Temporary Heating Equipment.

16.2.1.1 Temporary heating equipment shall be listed and shall be installed, used, and maintained in accordance with the manufacturer's instructions. [241:5.2.1]

16.2.1.2 Chimney or vent connectors, where required from direct-fired heaters, shall be maintained at least 18 in. (460 mm) from combustibles and shall be installed in accordance with NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*. [241:5.2.2]

16.2.1.3 Oil-fired heaters shall comply in design and installation features with Section 11.5. [241:5.2.3]

16.2.1.4 Fuel supplies for liquefied petroleum gas-fired heaters shall comply with NFPA 54, *National Fuel Gas Code*, and Chapter 69. [241:5.2.4]

16.2.1.5* Refueling operations shall be conducted in an approved manner. [241:5.2.5]

16.2.1.6 Heating devices shall be situated so that they are secured. [241:5.2.6]

16.2.1.7 Heating devices shall be installed in accordance with their listing, including clearance to combustible material, equipment, or construction. [241:5.2.7]

16.2.1.8* Temporary heating equipment, where utilized, shall be monitored for safe operation and maintained by properly trained personnel. [241:5.2.8]

16.2.2 Waste Disposal.

16.2.2.1* Accumulations of combustible waste material, dust, and debris shall be removed from the structure and its immediate vicinity at the end of each work shift or more frequently as necessary for safe operations. [241:5.4.1]

16.2.2.2 Rubbish shall not be burned on the premises without first obtaining a permit from the AHJ. (See Section 10.11.) [241:5.4.2]

16.2.2.3 Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container. [241:5.4.3]

16.2.2.4 Trash chutes, where provided, shall comply with 16.2.2.4.1 through 16.2.2.4.6. [241:5.4.4]

16.2.2.4.1* A trash chute safety plan shall be submitted to and approved by the AHJ. [241:5.4.4.1]

16.2.2.4.2 Trash chutes used on the exterior of a building shall be of noncombustible construction, or protected in accordance with 16.2.2.4.3 through 16.2.2.4.6 if of combustible construction. [241:5.4.4.2]

16.2.2.4.3* 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. [241:5.4.4.3]

16.2.2.4.4 The temporary sprinkler required by 16.2.2.4.3 shall be protected by the recess as well as a listed sprinkler guard. [241:5.4.4.4]

16.2.2.4.5 The temporary sprinkler required by 16.2.2.4.3 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 ¾ in. (19 mm) and a listed flexible connector. [241:5.4.4.5]

16.2.2.4.6 The temporary sprinkler required by 16.2.2.4.3 shall be protected against freezing where required by the AHJ. [241:5.4.4.6]

16.2.3 Flammable and Combustible Liquids and Flammable Gases.

16.2.3.1 Storage.

16.2.3.1.1 Storage of flammable and combustible liquids shall be in accordance with Chapter 66, unless otherwise modified by 16.2.3. [241:5.5.1.1]

16.2.3.1.2* Storage of Class I and Class II liquids shall not exceed 60 gal (227 L) within 50 ft (15 m) of the structure. [241:5.5.1.2]

16.2.3.1.3 Storage areas shall be kept free of weeds, debris, and combustible materials not necessary to the storage. [241:5.5.1.3]

16.2.3.1.4 Open flames and smoking shall not be permitted in flammable and combustible liquids storage areas. [241:5.5.1.4]

16.2.3.1.5 Such storage areas shall be appropriately posted as "no smoking" areas. [241:5.5.1.5]

16.2.3.1.6 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*. [241:5.5.1.6]

16.2.3.2 Handling of Flammable and Combustible Liquids at Point of Final Use.

16.2.3.2.1 Handling of flammable and combustible liquids shall be in accordance with Chapter 66, except as modified by 16.2.3.2.2 through 16.2.3.2.4. [241:5.5.2.1]

16.2.3.2.2 Class I and Class II liquids shall be kept in approved safety containers. [241:5.5.2.2]

16.2.3.2.3 Means shall be provided to dispose of leakage and spills promptly and safely. [241:5.5.2.3]

16.2.3.2.4* Class I liquids shall be dispensed only where there are no open flames or other sources of ignition within the possible path of vapor travel. [241:5.5.2.4]

16.2.3.3 Storage and Handling of Combustible and Flammable Gases.

16.2.3.3.1 Storage and handling of combustible and flammable gases shall be in accordance with NFPA 54, *National Fuel Gas Code*, and Chapter 69. [241:5.5.3.1]

16.2.3.3.2 Open flames and smoking shall not be permitted in flammable gas storage areas. [241:5.5.3.2]

16.3 Fire Protection.

16.3.1 Fire Safety Program. An overall construction or demolition fire safety program shall be developed. Essential items to be emphasized include the following:

- (1) Good housekeeping
- (2) On-site security
- (3) Installation of new fire protection systems as construction progresses
- (4) Preservation of existing systems during demolition
- (5) Organization and training of an on-site fire brigade

- (6) Development of a prefire plan with the local fire department
- (7) Rapid communication
- (8) Consideration of special hazards resulting from previous occupancies
- (9) Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations [241:7.1]

16.3.2 Owner's Responsibility for Fire Protection.

16.3.2.1* The owner shall designate a person who shall be responsible for the fire prevention program and who shall ensure that it is carried out to completion. [241:7.2.1]

16.3.2.1.1 The fire prevention program manager shall have the authority to enforce the provisions of NFPA 241 and other applicable fire protection standards. [241:7.2.1.1]

16.3.2.1.2 The fire prevention program manager shall have knowledge of the applicable fire protection standards, available fire protection systems, and fire inspection procedures. [241:7.2.1.2]

16.3.2.1.3 Inspection records shall be available for review by the AHJ. [241:7.2.1.3]

16.3.2.2 Where guard service is provided, the fire prevention program manager shall be responsible for the guard service. [241:7.2.2]

16.3.2.3* Prefire Plans.

16.3.2.3.1 Where there is public fire protection or a private fire brigade, the manager shall be responsible for the development of prefire plans in conjunction with the fire agencies. [241:7.2.3.1]

16.3.2.3.2 Prefire plans shall be updated as necessary. [241:7.2.3.2]

16.3.2.3.3 The prefire plan shall include provisions for on-site visits by the fire agency. [241:7.2.3.3]

16.3.2.4 Program Manager Responsibilities.

16.3.2.4.1 The manager shall be responsible for ensuring that proper training in the use of protection equipment has been provided. [241:7.2.4.1]

16.3.2.4.2 The manager shall be responsible for the presence of adequate numbers and types of fire protection devices and appliances and for their proper maintenance. [241:7.2.4.2]

16.3.2.4.3 The manager shall be responsible for supervising the permit system for hot work operations. (*See Section 5.1 of NFPA 241.*) [241:7.2.4.3]

16.3.2.4.4 A weekly self-inspection program shall be implemented, with records maintained and made available. [241:7.2.4.4]

16.3.2.4.5* Impairments to the fire protection systems or fire alarm, detection, or communications systems shall be authorized only by the fire prevention program manager. [241:7.2.4.5]

16.3.2.4.6 Temporary protective coverings used on fire protection devices during renovations, such as painting, shall be removed promptly when work has been completed in the area. [241:7.2.4.6]

16.3.2.5 Site Security.

16.3.2.5.1* Guard service shall be provided where required by the AHJ. [241:7.2.5.1]

16.3.2.5.2* Where guard service is provided, the guard(s) shall be trained in the following:

- (1) Notification procedures that include calling the fire department and management personnel
- (2) Knowledge of fire protection equipment
- (3) Familiarization with fire hazards
- (4) Use of construction elevators [241:7.2.5.2]

16.3.2.5.3 Guards shall be informed of any special status of emergency equipment or hazards. [241:7.2.5.3]

16.3.2.5.4* Security fences shall be provided where required by the AHJ. [241:7.2.5.4]

16.3.2.5.5* Entrances (e.g., doors and windows) to the structure under construction, alteration, or demolition shall be secured where required by the AHJ. [241:7.2.5.5]

16.3.3* Fire Alarm Reporting.

16.3.3.1 There shall be a readily available public fire alarm box near the premises, telephone service to the responding fire department, or equivalent facilities. [241:7.4.1]

16.3.3.2 Instructions shall be issued for the immediate notification of the fire department in the case of a fire. Where telephone service is employed, the local fire department number and site address shall be conspicuously posted near each telephone. [241:7.4.2]

16.3.4 Access for Fire Fighting.

16.3.4.1 A suitable location at the site shall be designated as a command post and provided with plans, emergency information, keys, communications, and equipment, as needed. [241:7.5.1]

16.3.4.2 The person in charge of fire protection shall respond to the location command post whenever fire occurs. [241:7.5.2]

16.3.4.3 Where access to or within a structure or an area is unduly difficult because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the AHJ shall be permitted to require a key box to be installed in an accessible location. [241:7.5.3]

16.3.4.4 The key box shall be an approved type and shall contain keys to gain access as required by the AHJ. (See Section 18.2.) [241:7.5.4]

16.3.4.5 Stairs.

16.3.4.5.1 In all buildings over one story in height, at least one stairway shall be provided that is in usable condition at all times and that meets the requirements of NFPA 101. [241:7.5.6.1]

16.3.4.5.2 This stairway shall be extended upward as each floor is installed in new construction and maintained for each floor still remaining during demolition. [241:7.5.6.2]

16.3.4.5.3 The stairway shall be lighted. [241:7.5.6.3]

16.3.4.5.4 During construction, the stairway shall be enclosed where the building exterior walls are in place. [241:7.5.6.4]

16.3.4.5.5 All exit stairs shall be provided with stair identification signs to include the floor level, stair designation, and exit path direction as required to provide for safe egress. [241:7.5.6.5]

16.3.5 Standpipes. In all new buildings in which standpipes are required or where standpipes exist in buildings being altered or

demolished, such standpipes shall be maintained in conformity with the progress of building construction in such a manner that they are always ready for use. [241:7.6]

16.3.6* First-Aid Fire-Fighting Equipment.

16.3.6.1* The suitability, distribution, and maintenance of extinguishers shall be in accordance with Section 13.6. [241:7.7.1]

16.3.6.2 Wherever a toolhouse, storeroom, or other shanty is located in or adjacent to the building under construction or demolition, or where a room or space within that building is used for storage, a dressing room, or a workshop, at least one approved extinguisher shall be provided and maintained in an accessible location, unless otherwise permitted by 16.3.6.3. [241:7.7.2]

16.3.6.3 The requirement of 16.3.6.2 shall be permitted to be waived where the structure does not exceed 150 ft² (14 m²) in floor area or is equipped with automatic sprinklers or other approved protection. [241:7.7.3]

16.3.6.4 At least one approved fire extinguisher also shall be provided in plain sight on each floor at each usable stairway as soon as combustible material accumulates. [241:7.7.4]

16.3.6.5 Suitable fire extinguishers shall be provided on self-propelled equipment. [241:7.7.5]

16.3.6.6* Free access to permanent, temporary, or portable first-aid fire equipment shall be maintained at all times. [241:7.7.6]

16.4 Safeguarding Construction and Alteration Operations.

16.4.1* Scaffolding, Shoring, and Forms.

16.4.1.1 Accumulations of unnecessary combustible forms or form lumber shall be prohibited. [241:8.2.1]

16.4.1.2 Combustible forms or form lumber shall be brought into the structure only when needed. [241:8.2.2]

16.4.1.3 Combustible forms or form lumber shall be removed from the structure as soon as stripping is complete. [241:8.2.3]

16.4.1.4 Those portions of the structure where combustible forms are present shall not be used for the storage of other combustible building materials. [241:8.2.4]

16.4.1.5* During forming and stripping operations, portable fire extinguishers or charged hose lines shall be provided to protect the additional combustible loading adequately. [241:8.2.5]

16.4.2 Temporary Separation Walls.

16.4.2.1 Protection shall be provided to separate an occupied portion of the structure from a portion of the structure undergoing alteration, construction, or demolition operations when such operations are considered as having a higher level of hazard than the occupied portion of the building. [241:8.6.2.1]

16.4.2.2 Walls shall have at least a 1-hour fire resistance rating. [241:8.6.2.2]

16.4.2.3 Opening protectives shall have at least a 45-minute fire protection rating. [241:8.6.2.3]

16.4.2.4* Nonrated walls and opening protectives shall be permitted when an approved automatic sprinkler system is installed. [241:8.6.2.4]

16.4.3 Fire Protection During Construction.

16.4.3.1 Water Supply.

16.4.3.1.1* A water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible material accumulates. [241:8.7.2.1]

16.4.3.1.2 There shall be no delay in the installation of fire protection equipment. (See A.16.4.1.5.) [241:8.7.2.2]

16.4.3.1.3* 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. [241:8.7.2.3]

F L 16.4.3.1.3.1 Completion of the water mains and hydrants may be on an alternate schedule approved by the AHJ.

16.4.3.2 Sprinkler Protection.

16.4.3.2.1* If automatic sprinkler protection is to be provided, the installation shall be placed in service as soon as practicable. [241:8.7.3.1]

16.4.3.2.2 The details of installation shall be in accordance with NFPA 13. [241:8.7.3.2]

16.4.3.2.3 Where sprinklers are required for safety to life, the building shall not be occupied until the sprinkler installation has been entirely completed and tested so that the protection is not susceptible to frequent impairment caused by testing and correction, unless otherwise permitted by 16.4.3.2.4. [241:8.7.3.3]

16.4.3.2.4 The provision of 16.4.3.2.3 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 16.4.3.2.3.
- (2) The sprinkler protection of the upper floors is supplied by entirely separate systems and separate control valves so that the absence or incompleteness of protection in no way impairs the sprinkler protection of the occupied lower floors. [241:8.7.3.4]

16.4.3.2.5 The operation of sprinkler control valves shall be permitted only by properly authorized personnel and shall be accompanied by the notification of duly designated parties. [241:8.7.3.5]

16.4.3.2.6 Where the sprinkler protection is 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 shift to ascertain that protection is in service. [241:8.7.3.6]

16.4.3.3 Standpipes.

16.4.3.3.1 General.

16.4.3.3.1.1* The pipe size, hose valves, hose, water supply, and other details for new construction shall be in accordance with Section 13.2. [241:8.7.4.1.1]

16.4.3.3.1.2 On permanent Type II and Type III standpipes, hose and nozzles shall be provided and made ready for use as soon as the water supply is available to the standpipe, unless otherwise permitted by 16.4.3.3.1.3. [241:8.7.4.1.2]

16.4.3.3.1.3* In combined systems where occupant hose is not required, temporary hose and nozzles shall be provided during construction. [241:8.7.4.1.3]

16.4.3.3.2 Standpipe Installations in Buildings Under Construction. Where required by the AHJ, in buildings under construction, a standpipe system, either temporary or permanent in nature, shall be installed in accordance with 16.4.3.3.2.1 through 16.4.3.3.2.10. [241:8.7.4.2]

16.4.3.3.2.1 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. [241:8.7.4.2.1]

16.4.3.3.2.2 The pipe sizes, hose valves, hose, water supply, and other details for new construction shall be in accordance with NFPA 241. [241:8.7.4.2.2]

16.4.3.3.2.3 The standpipes shall be securely supported and restrained at each alternate floor. [241:8.7.4.2.3]

16.4.3.3.2.4* 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 AHJ. [241:8.7.4.2.4]

16.4.3.3.2.5 Valves shall be kept closed at all times and guarded against mechanical injury. [241:8.7.4.2.5]

16.4.3.3.2.6 Hose valves shall have NH standard external threads for the valve size specified in accordance with NFPA 1963, *Standard for Fire Hose Connections*, unless modified by 16.4.3.3.2.7. [241:8.7.4.2.6]

16.4.3.3.2.7 Where local fire department connections do not conform to NFPA 1963, the AHJ shall designate the connection to be used. [241:8.7.4.2.7]

16.4.3.3.2.8* The standpipes shall be extended up with each floor and shall be securely capped at the top. [241:8.7.4.2.8]

16.4.3.3.2.9 Top hose outlets shall be not more than one floor below the highest forms, staging, and similar combustibles at all times. [241:8.7.4.2.9]

16.4.3.3.2.10 Temporary standpipes shall remain in service until the permanent standpipe installation is complete. [241:8.7.4.2.10]

16.4.4 Alteration of Buildings.

16.4.4.1 Where the building is protected by fire protection systems, such systems shall be maintained operational at all times during alteration.

16.4.4.2 Where alteration requires modification of a portion of the fire protection system, the remainder of the system shall be kept in service and the fire department shall be notified.

16.4.4.3 When it is necessary to shut down the system, the AHJ shall have the authority to require alternate measures of protection until the system is returned to service.

16.4.4.4 The fire department shall be notified when the system is shut down and when the system is returned to service.

16.4.4.5 All required exit components shall be maintained in accordance with this Code as deemed necessary by the AHJ.

16.4.4.6 Fire-resistive assemblies and construction shall be maintained.

16.5 Fire Safety During Demolition.

16.5.1 If a building intended to be demolished contains a sprinkler system, such system shall not be rendered inoperative without approval of the AHJ.

16.5.2 Demolition operations involving the use of cutting and welding shall be done in accordance with Chapter 41.

16.5.3 Combustible waste material shall not be burned at the demolition site unless approved by the AHJ. Combustible materials shall be removed from the site as often as necessary to minimize the hazards therefrom. (See 16.2.2 and Section 10.11.)

16.5.4 Where in the opinion of the AHJ the demolition site is of a hazardous nature, qualified personnel shall serve as an on-site fire watch.

16.6 Torch-Applied Roofing Systems.

16.6.1 Permits. Permits, where required, shall comply with Section 1.12.

16.6.2 Torch-applied roofing systems shall be installed in accordance with Chapter 9 of NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations.*

16.7 Tar Kettles.

16.7.1 General.

16.7.1.1 The provisions of Section 16.7 shall apply to any type of equipment including, but not limited to, chassis-mounted equipment used for preheating or heating tar, asphalt, pitch, or similar substances for roofs, floors, pipes, or similar objects.

16.7.1.2 Permits. Permits, where required, shall comply with Section 1.12.

16.7.1.3 Operating kettles shall not be located inside of or on the roof of any building.

16.7.1.4 Tar Kettle Location. The kettle shall be operated in a controlled area. The area shall be identified by the use of traffic cones, barriers, and other suitable means as approved by the AHJ.

16.7.1.5 Kettle Supervision.

16.7.1.5.1 An operating kettle shall be attended by a minimum of one employee who is knowledgeable of the operations and hazards.

16.7.1.5.2 The employee shall be within 25 ft (7.6 m) of the kettle and shall have the kettle within sight.

16.7.1.6 Fire Extinguishers.

16.7.1.6.1 Two approved 4-A:40-B:C fire extinguishers shall be provided and maintained within 25 ft (7.6 m) of the operating kettle.

16.7.1.6.2* A minimum of one approved 4-A:40-B:C fire extinguisher shall be provided and maintained on the roof in close proximity to the roofing operations while the roofing material is being applied.

16.7.1.6.3 Fire extinguishers shall be mounted in an accessible and visible or identified location.

16.7.1.7 Exits.

16.7.1.7.1 Roofing kettles shall not block exits, means of egress, gates, roadways, or entrances.

16.7.1.7.2 Kettles shall not be closer than 10 ft (3 m) from exits or means of egress.

16.7.2 Fuel System.

16.7.2.1 Fuel containers shall be constructed and approved for the use for which they were designed.

16.7.2.2 Liquefied petroleum gas (LP-Gas) containers, hose, regulators, and burners shall conform to the requirements in Chapter 69.

16.7.2.3 LP-Gas cylinders shall be secured to prevent accidental tipover.

16.7.2.4 Regulators shall be required on any cylinders.

16.7.2.5 Where, in the opinion of the AHJ, physical damage to the container is a danger, protection shall be provided to prevent such physical damage.

16.7.2.6 LP-Gas containers for roofing kettles shall not be used in any building.

16.7.3 Maintenance.

16.7.3.1 Roofing kettles and all integral working parts shall be in good working condition and shall be maintained free of excessive residue.

16.7.3.2 All piping used for pumping heated material to the roof shall be installed in a manner to prevent loss of heated material.

16.7.3.3 Flexible steel piping shall not be used on the vertical extension of piping systems.

16.7.3.4 Flexible steel piping shall be limited to those connections that are immediately adjacent to the pump kettle or discharge outlet.

16.7.3.5 No single length of flexible piping shall exceed 6 ft (1.8 m) in length, and all piping shall be able to withstand a pressure of at least four times the working pressure of the pump.

16.7.3.6 Roofing Kettle Doors.

16.7.3.6.1 All roofing kettles shall have doors permanently attached.

16.7.3.6.2 Roofing kettle doors shall be installed in a workmanlike manner and shall be provided with handles that allow them to be opened without the operator having to stand in front of same.

16.7.3.6.3 All kettles shall have an approved, working visible temperature gauge that indicates the temperature of the material being heated.

16.7.3.7 All kettle doors shall be tightly closed and latched when in transit.

16.7.4 Construction.

16.7.4.1 The materials and methods of construction of roofing kettles shall be acceptable to the AHJ.

16.7.4.2 Minimum Requirements.

16.7.4.2.1 Paragraph 16.7.4.2 shall apply to all roofing kettles or tar pots in excess of 1 gal (3.8 L) capacity.

16.7.4.2.2 No roofing kettle shall have a capacity in excess of 5 barrels (bbl).

16.7.4.2.3 Roofing kettles of 2 bbl capacity or less shall be constructed of steel sheet having a thickness of not less than 0.105 in. (No. 12 Manufacturers' Standard Gauge). Kettles of more than 2 bbl capacity shall be constructed of steel sheet having a thickness of not less than 0.135 in. (No. 10 Manufacturers' Standard Gauge). All supports, comers, and the top and bottom of the fire box shall be bound with angle iron or other reinforcements approved by the AHJ. All doors shall be hinged, closely fitted, and adequately latched. Fire boxes shall be of sufficient height from the ground or shall be provided with a system of shields or insulation to prevent heat damage to the street surface.

16.7.4.2.4 Lids that can be gravity operated shall be provided on all roofing kettles. The tops and covers of all kettles shall be constructed of steel sheet having a thickness of not less than 0.075 in. (1.90 mm) (No. 14 Manufacturers' Standard Gauge) that is close fitting and attached to the kettle with hinges that allow gravity to close the lid.

16.7.4.2.5 The chassis shall be substantially constructed and capable of carrying the load imposed upon it whether it is standing still or being transported.

16.7.4.2.6 Fuel containers, burners, and related appurtenances of roofing kettles in which LP-Gas is used for heating shall comply with all the requirements of Chapter 69.

16.7.4.2.7 Fuel containers that operate under air pressure shall not exceed 20 gal (76 L) in capacity and shall be subject to the approval of the AHJ.

16.7.4.2.8 All fuel containers shall be maintained in accordance with applicable NFPA codes and standards or shall be at least 10 ft (3 m) from the burner flame or at least 2 ft (0.6 m) therefrom when properly insulated from heat or flame.

16.8 Asbestos Removal.

16.8.1 Notification. The AHJ and the fire department shall be notified 24 hours prior to the commencement and closure of asbestos removal operations.

16.8.2 Permits. Permits, where required, shall comply with Section 1.12.

16.8.3 Signs. Approved signs shall be posted at the entrance, exit and exit access door, decontamination areas, and waste disposal areas for asbestos removal operations.

16.8.3.1 The signs shall state that asbestos is being removed from the area, that asbestos is a suspected carcinogen, and that proper respiratory protection is required.

16.8.3.2 Signs shall have a reflective surface, and lettering shall be a minimum of 2 in. (51 mm) high.

16.9 Rubberized Asphalt Melter for Roof Deck Systems.

16.9.1 Rubberized Asphalt Melter (Melter) defined as portable equipment used for the heating of rubberized asphalt material. The term applies only if both the material being heated is a mix of asphalt and inert material and if an indirect method of heating is used.

16.9.2 General.

16.9.2.1 The provisions of Section 16.9 shall apply to any type of fully enclosed chassis-mounted or portable Rubberized Asphalt Melter using indirect heating of a mix of asphalt and inert material for application on roofs decks.

16.9.2.2 Indirect heating refers to an independent fully enclosed oil system that transfers heat from a burner to oil around the outside of a material vat which then heats the rubberized material. There is no direct burner or flame impingement on the material vat with indirect heating. Temperature rise in the material vat is gradual and controlled.

16.9.3 Permits. Permits, where required, shall comply with Section 1.12.

16.9.3.1 Permits for the operation of a Rubberized Asphalt Melter on a roof deck shall not be deemed a permit for torches or burners. Any use of torches or burners will require a separate permit.

16.9.4 Rubberized Asphalt Melter Location. The melter shall be located and operated in a controlled area. The area shall be identified by the use of traffic cones, barriers, and other suitable means as designated by the AHJ.

16.9.4.1 Melters shall be permitted to be located and operated on roof decks.

16.9.4.2 The design load of the roof deck shall be capable of supporting the weight of the melter when loaded to capacity with rubberized asphalt material. The design load of the roof deck shall be as determined on building drawings or by a design professional acceptable to the AHJ.

16.9.4.3 Melters shall be chocked in place on the roof deck at locations identified by the design professional and acceptable to the AHJ.

16.9.4.4 Rubberized Asphalt Cakes for use in Melters shall be located on the roof at a location agreed upon by the design professional and the AHJ.

16.9.4.5 Rubberized Asphalt Melters shall not be located inside of any building.

16.9.5 Exits.

16.9.5.1 Melters shall not block exits or a means of egress or escape to an exit.

16.9.5.2 Melters shall not be closer than 10 ft. from exits.

16.9.6 Fire Extinguishers.

16.9.6.1 Two approved 4-A:40-B:C fire extinguishers shall be provided and one maintained within 25 ft. of the melter, and one in close proximity to roofing material application.

16.9.6.2 Each worker shall be instructed on the proper use of fire extinguishers and in the event of a fire to turn off all Melter engines and burners and notify the fire department.

16.9.7 Melter Operation.

16.9.7.1 Melters shall be operated according to manufacturer instructions. Melters shall operate using integral control systems that include temperature controls for the diesel fired burner, the oil system, and the material vat.

16.9.7.1.1 The diesel burner shall fire into an oil jacketed tank for uniform transfer. There shall be no open flame devices on rubberized asphalt melters.

16.9.7.1.2 All melters shall have Melter lids permanently attached. The Melter lids shall be kept closed at all times, except to add rubberized asphalt membrane cakes to the melter, in order to control the temperature of the melter and limit the production of smoke and fumes.

16.9.7.1.3 The property representative shall be familiar with the roof application process and shall assist the roofing contractor in identifying air intakes into the building and coordinating shut off and resupply of fresh air into the building. This may include temporarily covering air intakes so as to make them smoke and odor proof.

16.9.7.2 Rubberized Asphalt Melter Supervision.

16.9.7.2.1 An operating melter shall be attended by a minimum of one employee who is knowledgeable and is solely dedicated to the operation of the equipment and associated hazards.

16.9.7.2.2 The employee shall be within 25 ft. of the melter and shall have the melter within sight.

16.9.7.2.3 The employee shall remain in the area of the melter for a minimum of one-hour after the device is shut down.

16.9.7.2.4 The contractor shall have the capability to immediately notify the fire department of an emergency on the site.

16.9.7.2.5 Copies of Material Safety Data Sheets and Rubberized Asphalt Melter manufacturer manuals shall be readily accessible on the job site.

16.9.7.3 Construction.

16.9.7.3.1 The materials and methods of construction of melters shall be acceptable to the AHJ.

16.9.7.3.2 Loading doors shall be designed as a safety door integral to the tank and shall be provided with handles that allow rubberized asphalt cakes to be lowered into the tank without operator exposure to the vat material.

16.9.7.3.3 All melters shall have an approved, working visible temperature gauge that indicate the temperature of the rubberized material being heated and the temperature of the oil system heating the material vat.

16.9.7.3.4 The Melter shall have limit switches that prevent the material vat from heating beyond 400 degrees F.

16.9.7.4 Fuel System.

16.9.7.4.1 Fuel containers shall be constructed and approved for the use for which they were designed. Melter fuel tanks shall be attached to the frame of the Melter.

16.9.7.4.2 Melters shall be diesel fuel or electrically powered.

16.9.7.4.3 Portable fuel tanks shall not be utilized to power Melters.

16.9.7.4.4 Diesel tanks and engines integral to Melters shall be maintained in accordance with manufacturer instructions.

16.9.7.4.5 Refueling of diesel tanks shall be performed when the melter is off.

16.9.7.4.5.1 A refueling and spill prevention plan acceptable to the AHJ shall be utilized.

16.9.7.4.5.2 Refueling shall be conducted using approved safety can(s).

16.9.7.4.6 No open flames shall be present within 20 feet of the refueling operation.

16.9.7.5 Maintenance.

16.9.7.5.1 Melters and all integral working parts shall be in good working condition and shall be maintained free of excessive residue.

16.9.7.6 Minimum Requirements.

16.9.7.6.1 Melters shall be operated as a complete unit as designed and built by the manufacturer. Field changes that override controls or safety features shall not be permitted.

16.9.7.6.2 Material vats on Melters shall have a capacity of 230 gallons or less. Material vats shall be a permanent integral part of the Melter unit.

16.9.7.6.3 The Melter chassis shall be substantially constructed and capable of carrying the load imposed upon it whether it is standing still or being transported.

Chapter 17 Wildlife Urban Interface

17.1 General. The planning, construction, maintenance, education, and management elements for the protection of life and property from wildfire shall meet the requirements of this chapter and NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*.

17.1.1 In cases in which the local jurisdiction declares that an area within the jurisdiction is a wildland urban interface as determined by an assessment tool based upon accepted fire services practices, or where new structures will be located in a wildland/urban interface or intermix area, the AHJ shall perform, or cause to be performed, a wildland fire hazard assessment of each structure ignition zone in the development to determine relative risk, the extent of wildland fire hazard, and applicable mitigation measures.

17.1.2* The structure assessment shall, as a minimum, include the following:

- (1) Identification and documentation of the wildland fire hazards in the ignition zone(s) for each structure within wildland fire hazard areas, according to the elements and conditions in 17.1.4
- (2) Determination of mitigation measures for vegetation, other combustibles, and the structure, including the periodic maintenance associated with such measures
- (3) Establishment of priorities relative to mitigating the risks from wildland fire [1144:4.1.2]

17.1.3 The wildland fire hazard assessment shall be the basis for recommended mitigation measures relative to the vegetation, other combustibles, and structures on the site. [1144:4.1.3]

17.1.4* Structure Assessment Elements and Conditions. As a minimum, the structure assessment shall cover elements and conditions indicated in 17.1.5 through 17.1.9. [1144:4.2]

17.1.5 Overview of the Surrounding Environment. The structure assessment shall document the conditions of 17.1.5.1 through 17.1.5.5 in the assessment of the surrounding environment, as they will place the structure in the most risk from ignition by a wildland fire. [1144:4.2.1]

17.1.5.1* The structure assessment shall document the location of the structure in relation to predominant topographical features, such as flat open areas, ridges, saddles, steep slopes, natural chimneys like steep narrow draws, or small canyons, that will increase the ignition potential of the structure. [1144:4.2.1.1]

17.1.5.2* The structure assessment shall document local weather conditions, including wind, relative humidity, temperature, and fine fuel moisture content. [1144:4.2.1.2]

17.1.5.3* The structure assessment shall document nearby structures using the same criteria as the primary structure. [1144:4.2.1.3]

17.1.5.4* The structure assessment shall document any neighboring properties that could impact the ignition zone of the property being assessed. [1144:4.2.1.4]

17.1.5.5* The structure assessment shall document the structure's location on the slope relative to the structure's potential exposure to heat from a wildland fire. [1144:4.2.1.5]

17.1.6 From Chimney to Eaves. The structure assessment shall document the conditions of 17.1.6.1 through 17.1.6.6 to observe construction and vegetation as they place the structure in the most risk from ignition by a wildland fire. [1144:4.2.2]

17.1.6.1* The structure assessment shall document the type and construction of roofing materials. [1144:4.2.2.1]

17.1.6.2* The structure assessment shall document the condition of roofing materials and assemblies. [1144:4.2.2.2]

17.1.6.3* The structure assessment shall document all skylights in roof assemblies. [1144:4.2.2.3]

17.1.6.4* The structure assessment shall document the potential of roof gutters and areas where exterior walls meet roof or deck surfaces to collect litter on surfaces or in crevices. [1144:4.2.2.4]

17.1.6.5* The structure assessment shall document the construction materials of gutters, downspouts, and connectors. [1144:4.2.2.5]

17.1.6.6* The structure assessment shall document the materials and construction used in eaves of roof overhangs. [1144:4.2.2.6]

17.1.7 From Top of Exterior Wall to Foundation. The structure assessment shall document the conditions of 17.1.7.1 through 17.1.7.6 to observe construction and vegetation as they place the structure in the most risk from ignition by a wildland fire. [1144:4.2.3]

17.1.7.1* The structure assessment shall document the materials and construction used in exterior walls and exterior siding. [1144:4.2.3.1]

17.1.7.2 The structure assessment shall document the materials used for gutter downspouts and connectors on exterior walls. [1144:4.2.3.2]

17.1.7.3* The structure assessment shall document the materials used in windows and other openings in vertical surfaces. [1144:4.2.3.3]

17.1.7.4* The structure assessment shall document the location, size, and screening of ventilation openings. [1144:4.2.3.4]

17.1.7.5* The structure assessment shall document all attached accessory structures as part of the primary structure. [1144:4.2.3.5]

17.1.7.6* The structure assessment shall document areas next to or under a structure where combustible materials that present a source of flame exposure to the structure might collect. [1144:4.2.3.6]

17.1.8* From Foundation to the Immediate Landscaped Area. The structure assessment shall document the conditions of 17.1.8.1 through 17.1.8.5 to observe construction and vegetation, as they place the structure in the most risk from ignition by a wildland fire. [1144:4.2.4]

17.1.8.1* The structure assessment shall document all vegetative fuels and other combustible materials adjacent to and within 30 ft (9 m) of the structure for their potential to contribute to the intensity and spread of wildland fire. [1144:4.2.4.1]

17.1.8.2* The structure assessment shall document the presence and location of all heat and flame sources within 30 ft (9 m) of the primary structure. [1144:4.2.4.2]