



**NFPA 1 and
The New Connecticut Supplement**

*Presented by
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for the*

*Office of Education and Data Management
Fall 2015 Career Development Series*



NFPA 1 Fire Code

2003-2012 Update

Housekeeping

- Fire Alarm/Exits
- Pagers & Cell Phones
- Breaks/Lunch
- Restrooms
- Questions?

IF WE SEE YOU **SMOKING** WE WILL
ASSUME THAT YOU ARE ON **FIRE** &
TAKE APPROPRIATE MEASURES



NFPA Enforcer Fund

- Provides travel money to participate on NFPA Technical Committee
- Classified as "Enforcer" by NFPA Standards Council
- 80% travel and hotel covered

www.nfpa.org/codes-and-standards/standards-development-process/technical-committees/enforcer-funding-program



Alternate Fuel Vehicle Training

- Free training on how to respond to Alternate Fuel Vehicles incidents

www.nfpa.org/training/electric-vehicle-safety-training



Fire Protection Research Foundation

- Research affiliate of NFPA
- An independent nonprofit whose mission is to plan, manage and communicate research in support of the association.
- Established in response to a growing need for research that better informed NFPA's expanding body of codes and standards.

www.nfpa.org/research/fire-protection-research-foundation



One Stop Data Shop

- NFPA's Fire Analysis and Research division
- Supports NFPA programs and the fire community by providing reports and statistics on the loss of life and property from fires.
- Produces dozens of reports each year on the overall fire problem, firefighter fatalities and injuries in the United States, major fire causes, fire protection systems, and many other topics.

www.nfpa.org/research/reports-and-statistics



Overall Seminar Objective

To give attendee the major changes from the 2003-2012 edition of the code.



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Code Conventions

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[25:4.1.2]

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Organization

Part I	Administrative	1-9
Part II	General Fire Safety	10-19
Part III	Occupancy	20-39
Part IV	Processes	40-49
Part V	Equipment	50-59
Part VI	Hazardous Materials	60-75
Annexes		

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Major Changes

- Several new Chapters
- Several deleted Chapters
- Update referenced standards
- Several deleted Annexes
- Clean up language to clarify existing provisions

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Stop Work Order

Stop Work Order. The AHJ shall have the authority to order an operation, construction, or use stopped when any of the following conditions exists:

- (1) Work is being done contrary to provision of this *Code*.
- (2) Work is occurring without a permit required by Section 1.12.
- (3) An imminent danger has been created.

 1.7.14

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Chapter 6 Classification of Occupancy

- ??
- Mixed occupancies
- Incidental

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Multiple Occupancies

- ≥ 2 occupancies in a building
- 2 options for compliance
 - Mixed occupancies
 - Separated occupancies

 6.1.14.2.1

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Chapter 6 Mixed Occupancies

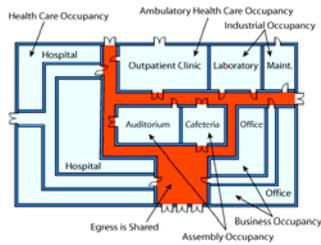
- 6.1.14.3.2 The means of egress facilities, construction type, protection, and other safeguards in the building shall comply with the most restrictive fire and life safety requirements of the occupancies involved unless separate safeguards are approved.

For example, a common path of travel that occurs wholly in a business tenant space, in a multiple occupancy building containing assembly and business occupancies, should not have to meet the assembly occupancy common path of travel limitation.

6.1.14.3.2

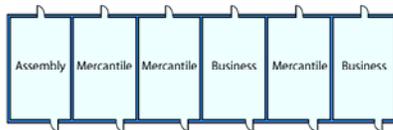
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Mixed Occupancy



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Separated Occupancies



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Incidental Occupancy

- May be considered part of predominant occupancy
 - Mercantile, business, industrial, storage
 - Non-residential with occupant load fewer than that established by definition

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6.1.14.1.3

Owner - Occupant

- Responsible for:
 - Compliance with Code
 - Notify AHJ of change of occupancy
 - AHJ may require tests or reports
 - Abating any unsafe condition
 - Keeping records as required by Code

10.2

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Change of use or occupancy classification

- Change from one use or occupancy classification comply with 101:4.6.7
- *101:4.6.7 Chapter 43 Building Rehabilitation*

10.3.4

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Maintenance, Inspection, and Testing

- Any device, equipment, system, condition, etc...
- Continually maintained
- No existing life safety feature shall be removed or reduced where such feature is a requirement for new construction
- Features obvious to the public maintained or removed
- Ensure maintenance, testing, inspection or operated as required
- Maintenance and testing under responsible person

10.4



Building Evacuation

- Persons shall not fail to leave a building when a fire alarm system is activated, unless otherwise provided for in an approved building evacuation plan or during routine testing or maintenance.

• 10.5



Emergency Plans

10.9 Emergency Plans.

10.9.2.1* Emergency plans shall include the following:

- (1)Procedures for reporting of emergencies
- (2)Occupant and staff response to emergencies
- (3)* Evacuation procedures appropriate to the building, its occupancy, and emergencies (see Section 4.3 of NFPA 101)
- (4)Appropriateness of the use of elevators
- (5)Design and conduct of fire drills
- (6)Type and coverage of building fire protection systems
- (7)Other items required by the AHJ



Emergency Plans

Emergency plans shall be reviewed and updated as required by the AHJ.

Used to be yearly.

10.9



Cooking Equipment

- For other than one- and two-family dwellings, no hibachi, grill, or other similar devices used for cooking, heating, or any other purpose shall be used or kindled on any balcony, under any overhanging portion, or within 10 ft. (3 m) of any structure.
- For other than one-and two-family dwellings, no hibachi, grill, or other similar devices used for cooking shall be stored on a balcony.
- Listed equipment permanently installed in accordance with its listing, applicable codes, and manufacturer's instructions shall be permitted.

10.11.6



Balconies

69.3.10.9.2 Cylinders having water capacities greater than 2.7 lb (1 kg) [nominal 1 lb (0.5 kg) LP-Gas capacity] shall not be located on decks or balconies of dwellings of two or more living units above the first floor unless they are served by exterior stairways. [58:6.19.11.2]

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Installation of Patio Heaters

- Patio heaters utilizing an integral LP-Gas container greater than 1.08 lb propane capacity shall comply with 10.11.7.2.2 through 10.11.7.2.3
- Patio heaters shall be listed and used in accordance with their listing and the manufacturer's instructions
- Patio heaters shall not be located within 5 ft. of exits from an assembly occupancy



10.11.7



Crop Maze

- Permits
- Safety instructions – employees and visitors
- Min two employees, one on a platform
- F.D. preplanning
- Motorized vehicles 75 ft.. away
- 20 ft.. fuel break
- Public address system
- No obstruction of entrance and exit
- < 200 persons per acre
- No open flame/fireworks



10.15.11



Parade Floats

Decorative Material. Decorative material on parade floats shall be noncombustible or flame retardant.



Storage Combustible Materials

- 10.19.3 Ceiling Clearance
 - 2 ft. unsprinklered
 - 18 in Sprinklered
 - NFPA 13 exception
- No storage in exits
- No storage in boiler/mechanical rooms
 - Except materials for operation and maintenance
- Attic, Under-floor, and Concealed Spaces



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Fueled Equipment

- Fueled Equipment not stored, operated or repaired within a building except
 - When constructed
 - Permitted by another section



10.19.7

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Indoor Children's Playground Structures

Structures intended as children's playgrounds, installed indoors and which exceed 10 feet in height and 160 square feet in area shall comply with specifications in 10.20.1.1

10.20



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Indoor Children's Playground Structures

10.20.1.1 Indoor children's playground structures shall be constructed of noncombustible materials or of combustible materials that comply with the following:

- (1) Fire retardant-treated wood.
- (2) Light-transmitting plastics per 10.20.1.2.
- (3) Foam plastics (including the pipe foam used in soft contained play equipment structures) having a maximum HRR not greater than 100 kW when tested UL 1975 or NFPA 289.



Indoor Children's Playground Structures

- (4) Aluminum composite material (ACM) meeting the requirements of Class A interior finish when tested as an assembly in the maximum thickness intended for use.
- (5) Textiles and films complying with NFPA 701.
- (6) Plastic materials used to construct rigid components of soft contained play equipment structures (such as tubes, windows, panels, junction boxes, pipes, slides, and decks) exhibiting a peak rate of HRR not exceeding 400 kW/m² when tested ASTM E 1354 at an incident heat flux of 0.24 in. (50 kW/m²) in the horizontal orientation at a thickness of 0.24 in. (6 mm).



Indoor Children's Playground Structures

- (7) Balls used in ball pools, in soft-contained play equipment structures, shall have a maximum HRR not greater than 100 kW when tested UL 1975 or NFPA 289 using the 20 kW ignition source.
The minimum specimen test size shall be 36 in. x 36 in. (0.91 m x 0.91 m) by an average of 21 in. (0.56 m) deep, and the balls shall be held in a box constructed of galvanized steel poultry netting wire mesh.
- (8) Foam plastics shall be covered by a fabric, coating, or film meeting the flame propagation performance criteria of NFPA 701.
- (9) The floor covering within the children's playground structure shall exhibit a Class I interior floor finish classification when tested in accordance with NFPA 253.



Indoor Children's Playground Structures

10.20.1.2* Light-transmitting plastics used for children's playgrounds shall meet all of the following criteria:

- (1) They shall have a self-ignition temperature of 650°F (343°C) or greater when tested in accordance with ASTM D 1929.
- (2) They shall have a smoke developed index not greater than 450 when tested in ASTM E 84 or ANSI/UL 723 or not greater than 75 when tested in the thickness intended for use in accordance with ASTM D 2843.



Indoor Children's Playground Structures

(3) They shall meet the criteria of one of the following classifications:

- (a) CC1 — Plastic materials that have a burn length of 1 in. (25 mm) or less and flame extinguishment when tested at a nominal thickness of 0.060 in. (1.5 mm), or in the thickness intended for use, in accordance with ASTM D 635
- (b) CC2 — Plastic materials that have a burning rate of 2 1/2 in./min (64 mm/min) or less when tested at a nominal thickness of 0.060 in. (1.5 mm), or at a thickness intended for use, in accordance with ASTM D 635

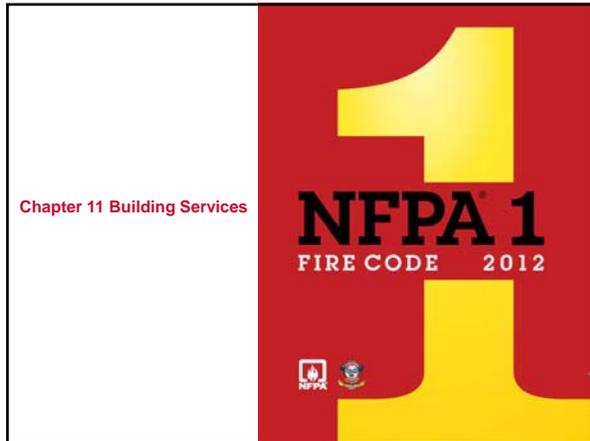


Indoor Children's Playground Structures

10.20.1.3 Indoor children's playground structures shall have a minimum horizontal separation from other structures of 20 ft. (6.1 m).

10.20.1.4 Indoor children's playground structures shall not exceed 300 ft² (28 m²) in area, unless approved by the AHJ.





Building Disconnect

- Means shall be provided for the fire department to disconnect the electrical service to a building, structure, or facility.
- Accessible to the fire department.

11.1.9

Building Disconnect

Identification of Disconnecting Means

- Each disconnecting means shall be legibly marked to indicate its purpose unless located and arranged so the purpose is evident
- The marking shall be of sufficient durability to withstand the environment involved

11.1.9.1

Electrical Fire Safety

Covers. All panel board and switch boards, pull boxes, junction boxes, switches, receptacles, and conduit bodies shall be provided with covers compatible with the box or conduit body construction and suitable for the conditions of use.



Portable Generators

- Portable generators shall not be operated or refueled within buildings, on balconies, or on roofs.
- Portable generators shall be permitted to be operated or refueled in a building or room that has been constructed for such use in accordance with the building code.
- Fueling from a container shall be permitted when the engine is shut down and engine surface temperature is below the auto ignition temperature of the fuel.
- Portable generators shall be positioned so that the exhaust is located as follows:
 - (a) At least 5 ft. (1.5 m) in any direction away from any openings or air intakes
 - (b) The exhaust shall be directed away from the building.



Emergency Power

- **Emergency and Legally Required Standby Power Systems.**
- New emergency or legally required standby power required by this Code, the building code, or other codes and standards shall be installed and maintained in accordance with NFPA 110, 111, and 37.



PV



Photovoltaic Systems

New photovoltaic systems shall be installed in accordance with Section 11.12 and NFPA 70.

Addresses building and ground mounted systems.

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PV

- **Main Service Disconnect Marking.**
 - AC/DC systems
 - red with white capital letters at least 3/4 in. in height and in a nonserif font, to read: "WARNING: PHOTOVOLTAIC POWER SOURCE."
 - reflective, weather resistant
- **Circuit Disconnecting Means Marking.**
 - circuit breaker controlling the inverter or other photovoltaic system electrical controller
 - contrasting color with capital letters at least 3/8 in. in height and in a nonserif font, to read: "PHOTOVOLTAIC DISCONNECT."

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PV

- **Conduit, Raceway, Enclosure, Cable Assembly, and Junction Box Markings.**
 - All interior and exterior dc conduits, raceways, enclosures, cable assemblies, and junction boxes.
 - Every 10 ft., at turns, and above and below penetrations.
 - Marking shall be placed on all dc combiner and junction boxes.
 - red with white lettering with minimum 3/8 in. capital letters in a nonserif font, to read: "WARNING: PHOTOVOLTAIC POWER SOURCE." Marking shall be reflective, weather resistant, and suitable for the environment.



PV

- **Secondary Power Source Markings.**
 - systems are interconnected to battery systems, generator backup systems, or other secondary power systems, additional signage acceptable to the AHJ shall be required indicating the location of the secondary power source shutoff switch.
- **Installer Information.**
 - Signage, acceptable to the AHJ, shall be installed adjacent to the main disconnect indicating the name and emergency telephone number of the installing contractor.



PV

- Access and spacing shall be required for emergency access to the roof for ventilation and emergency egress
- **Exceptions**
 - Proximity exposures
 - Alternate access options
 - Ground level access
 - Ventilation opportunities below PV
 - Ventilation opportunities set back from other equipment
 - Automatic ventilation devices
 - New technologies



PV

- Roof access points shall
 - not be placed over openings,
 - at strong points of construction, and
 - will not conflict with overhead obstructions

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PV Placement

One- and Two-Family



Ridge

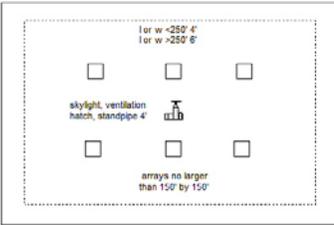
3'

Eave



PV Placement

Other than One- and Two-Family



for w < 250' 0"

for w > 250' 0"

skylight, ventilation hatch, standpipe 4'

arrays no larger than 150' by 150'



PV

- Pathways
 - Over areas capable of supporting fire fighters
 - Centerline axis pathways both axis of roof
 - Centerline axis shall run where roof structure can support fire fighter
 - Pathways shall be a straight line



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Ground Mounted

- 10 ft. clear area
- Non combustible base
- Security Barrier



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Features of Fire Protection



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Maintenance of Fire-Resistive Construction

- 12.3.3.3 Where readily accessible, required fire-resistance rated assemblies in high-rise buildings shall be visually inspected for integrity at least once every 5 years.
- 12.3.3.3.1 The person responsible for conducting the visual inspection shall demonstrate appropriate technical knowledge and experience in fire-resistance-rated design and construction acceptable to the AHJ.
- 12.3.3.3.2 A written report prepared by the person responsible for conducting the visual inspection shall be submitted to the AHJ documenting the results of the visual inspection.



Fire Doors and Fire Windows



Fire Doors and Other Operating Protectives

- Per 80
- Care, maintenance, inspection, testing, and repair
- When a door or window opening is no longer in use filled with construction equivalent of the wall
- Inspected and tested at least annually, written record



Fire Doors and Fire Windows

In cases where a field modification to a fire door or a fire door assembly is desired, the laboratory with which the product or component being modified is listed shall be contacted and a description of the modifications shall be presented to the laboratory.

 12.4.6.6.1

Interior Wall and Ceiling Finish

Revised requirements for

- Textile Wall and Ceiling Materials
- Revised Expanded Vinyl Wall and Ceiling Materials
- Cellular or Foamed Plastics
- Polypropylene and High-Density Polyethylene
- Site-Fabricated Stretch Systems
- Reflective Insulating Materials
- Fire Retardant Coatings

 12.5

Contents and Furnishings

- Upholstered furniture
- Mattress
- Lockers – Wood vs. non wood



Fire Doors and Windows

- New Glazing requirements
- Marking



12.7.4

Table 12.7.4.2 Minimum Fire Protection Ratings for Opening Protectives in Fire Resistance-Rated Assemblies and Fire-Rated Glazing Markings

Component	Walls and Fire Door Partitions Assembly (hr)	Door Vision Panel Maximum Size (sq ft)	Fire-Rated Glazing Door Vision Panel	Minimum Side Light Transom Assembly Rating (hr)		Fire-Rated Glazing Marking Side Light Transom Panel		Fire Window Assembly ^a		
				Fire Protection	Fire Resistance	Fire Protection	Fire Resistance	(hr)	Fire-Rated Glazing Marking Window	
Elevator landings	2	1½	155 sq. ft. ^b	D41W-00	NP	2	NP	D41W-120	NP	W-120
	1	1	155 sq. ft. ^b	D41W-00	NP	1	NP	D41W-60	NP	W-60
Elevator lobbies (per 7.2.13.4)	1	1	85 sq. ft. ^c	D41W-00	½	½	D41W-20	DW-20	NP	W-30
	1	1	100 sq. ft. ^b	<100 sq. ft. ^d D41F-60 or D41W-60 ^e >100 sq. ft. ^d D41W-60 ^e	NP	1	NP	D41W-60	NP	W-60
Vertical shafts, including stairways, exits, and refuge chutes	2	1½	Maximum size tested	D41W-00	NP	2	NP	D41W-120	NP	W-120
	1	1	Maximum size tested	D41W-00	NP	1	NP	D41W-60	NP	W-60

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Table 12.7.3.12 Marking Fire-Rated Glazing Assemblies

Fire Test Standard	Marking	Definition of Marking
ASTM E119, or ANSI/UL 263 ^a NFPA 257	W	Meets wall assembly criteria
	OH	Meets fire window assembly criteria, including the hose stream test
NFPA 252	D	Meets fire door assembly criteria
	H	Meets fire door assembly hose stream test
	T	Meets 450° F (232° C) temperature rise criteria for 30 minutes
	XXX	The time, in minutes, of fire resistance or fire protection rating of the glazing assembly

^aASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials* and ANSI/UL 263, *Standard for Fire Tests of Building Construction and Materials*. [10: Table 8.3.3.12]

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Smoke Dampers

- Inspected, tested, and maintained per 105.

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Chapter 13 Fire Protection Systems



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Update

- Brings in new and updated extracts from
 - NFPA 20
 - NFPA 25
 - NFPA 72
 - NFPA 10

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General System Requirements

The AHJ shall have the authority to require Locking Fire Department Connection (FDC) plugs or caps on all water-based fire protection systems

 13.1.12

Changes in Occupancy, Use, Process, or Materials

- The property owner or designated representative shall not make changes in the occupancy, the use or process, or the materials used or stored in the building without evaluation of the fire protection systems for their capability to protect the new occupancy, use, or materials.
- Shall not be considered part of the normal inspection, testing, and maintenance required by this Code.
- Factors to consider
 - (1) Occupancy changes
 - (2) Process or material changes
 - (3) Building revisions
 - (4) Removal of heating systems

 13.3.3.4.1.5

Changes in Occupancy, Use, Process, or Materials

- **13.3.3.4.1.6.1** Where changes in the occupancy, hazard, water supply, storage commodity, storage arrangement, building modification, or other condition that affects the installation criteria of the system are identified, the property owner or designated representative shall promptly take steps to evaluate the adequacy of the installed system in order to protect the building or hazard in question. [25:4.1.6.1]
- **13.3.3.4.1.6.2** Where the evaluation reveals that the installed system is inadequate to protect the building or hazard in question, the property owner or designated representative shall make the required corrections. [25:4.1.6.2]
- **13.3.3.4.1.6.3** Corrections shall be approved. [25:4.1.6.3]

 13.3.3.4.1.6

Fire Pumps

- System designer, installer, and service personnel qualifications
- Equipment Protection
 - Location
 - Protection
 - Distance
- Access not directly accessible from outside protected by enclosed passageway
- Access preplanned with FD
- No storage

 13.4.1.6

Fire Pumps – Indoor Units

13.4.2.1.1.1 Fire pump units serving high-rise buildings
2-hour fire-rated construction or
physically separated by 50 ft. (15.3 m)

13.4.2.1.1.2 Non-high-rise buildings or in separate fire pump buildings shall be physically separated or protected by fire-rated construction in accordance with Table 13.4.2.1.1.2.

13.4.2.1.1.3 The location of and access to the fire pump room shall be preplanned with the fire department.

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Fire Pumps – Indoor Units

13.4.2.1.1.4* Rooms containing fire pumps shall be

- free from storage, equipment, and
- penetrations

not essential to the operation of the pump and related components.

13.4.2.1.1.5 Equipment related to domestic water distribution shall be permitted to be located within the same room as the fire pump equipment.

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Table 13.4.2.1.1.2 Equipment Protection

Pump Room/House	Building(s) Exposing Pump Room/House	Required Separation
Not sprinklered	Not sprinklered	2 hour fire-rated or
Not sprinklered	Fully sprinklered	50 ft (15.3 m)
Fully sprinklered	Not sprinklered	1 hour fire-rated or
Fully sprinklered	Fully sprinklered	50 ft (15.3 m)

[20: Table 4.12.1.1.2]



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Fire Pumps

13.4.2.1.2 Outdoor Fire Pump Units.

13.4.2.1.2.1 Fire pump units that are outdoors shall be located at least 50 ft. (15.3 m) away from any buildings and other fire exposures exposing the building.

13.4.2.1.2.2 Outdoor installations shall be required to be provided with protection against possible interruption, in accordance with 13.4.2.1.

13.4.2.1 protected against possible interruption of service through damage caused by explosion, fire, flood, earthquake, rodents, insects, windstorm, freezing, vandalism, and other adverse conditions.



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PFE Service Personnel

- Maintenance and recharging personnel must be certified

Persons performing maintenance and recharging of extinguishers should meet one of the following criteria:

- Factory training and certification for the specific type and brand of portable fire extinguisher being serviced
- Certification by an organization acceptable to the AHJ
- Registration, licensure, or certification by a state or a local AHJ



13.6.9.1.2

PFE Inspection Electronic Monitoring

- Shall include a check of the following:
 - Location in designated place
 - No obstruction to access or visibility
 - Pressure gauge reading or indicator in the operable range or position
 - Fullness determined by weighing or hefting for self expelling-type extinguishers, cartridge-operated extinguishers, and pump tanks
 - Condition of tires, wheels, carriage, hose, and nozzle for wheeled extinguishers
 - Indicator for nonrechargeable extinguishers using push to-test pressure indicators

 13.6.9.2.2

Fire Alarm System Protection

Areas that are not continuously occupied, and unless otherwise permitted by 13.7.1.4.6.1.1 or 13.7.1.4.6.1.2, automatic smoke detection shall be installed to provide notification of fire at the following locations:

- (1) Each fire alarm control unit
- (2) Notification appliance circuit power extenders
- (3) Supervising station transmitting equipment

Exception

- Existing
- Ambient conditions heat detector

 13.7.1.4.6.1

Nonrequired Coverage

- Detection installed for reasons of achieving specific fire safety objectives, but not required by any laws, codes, or standards, shall meet all of the requirements of this Code, with the exception of prescriptive spacing criteria of Chapter 17 of *NFPA 72*.
- Where nonrequired detectors are installed for achieving specific fire safety objectives, additional detectors not necessary to achieve the objectives shall not be required.

 13.7.1.4.7

Emergency Force Notification

- Requires most existing occupancies to provide emergency force notification.
- Most require only on change of fire alarm control panel.



Local Fire Alarm Systems

13.7.3.3.9 When fire alarm systems are not monitored, an approved permanent sign shall be installed adjacent to each manual fire alarm box. The sign shall read:

- LOCAL ALARM ONLY
1. ACTIVATE ALARM
 2. EXIT BUILDING
 3. CALL FIRE DEPARTMENT



Impaired and Nuisance Alarm Prone Systems

Impaired fire alarm systems shall include required systems that are not fully operational, are no longer monitored as required by the AHJ, or are under renovation or repair.

- Owner shall immediately notify the AHJ in an approved manner when a fire alarm system is impaired.
- AHJ can require standby fire personnel or an approved fire watch
- Fire alarm systems with five or more nuisance alarms in a 365-day period shall be classified as chronic nuisance alarm prone systems.
- AHJ shall be authorized to require central station service be provided for chronic nuisance alarm prone systems.



13.7.5.1

Impaired and Nuisance Alarm Prone Systems

Fire alarm supervising stations and fire alarm service companies shall immediately notify the AHJ when any of the following conditions exists:

- (1) A fire alarm system is impaired.
- (2) Required system monitoring is no longer being provided.
- (3) Required testing, service, and maintenance is no longer being provided.
- (4) A fire alarm system cannot be serviced or repaired to make it fully operational.
- (5) A fire alarm system cannot be serviced or repaired to eliminate chronic nuisance alarms.

System owner shall replace required fire alarm systems that cannot be serviced or repaired to eliminate system impairments or chronic nuisance alarms.



Non-Listed Systems

13.9.1 It shall be unlawful to market, sell, advertise, or distribute any device or equipment as suitable for fire protection or fire suppression purposes unless the device or equipment is listed for such purpose by a nationally recognized testing laboratory or as otherwise permitted by 13.9.2.

13.9.2 When NFPA standards, other adopted standards, or the adopted code allow the use of non-listed fire protection or suppression equipment.

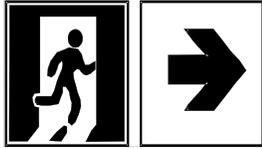


Carbon Monoxide Detection and Warning Equipment

- Where required be provided in accordance with NFPA 720.



Chapter 14 Means of Egress



Obstructions



Clear Means of Egress?



Blocked Exit?





Health Care

Stored or
Parked?



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Corridor Obstructions?



Locks, Latches, and Alarm Devices

14.5.2.2* The requirement of 14.5.2.1 shall not apply to door leaves of listed fire door assemblies after exposure to elevated temperature in accordance with the listing, based on laboratory fire test procedures.

- Some fire door assemblies are listed for use with fire pins or fusible links that render the door leaf release inoperative upon exposure to elevated temperature during a fire. The door leaf release mechanism is made inoperative where conditions in the vicinity of the door opening become untenable for human occupancy, and such door opening no longer provides a viable egress path. [101: A.7.2.1.5.2]

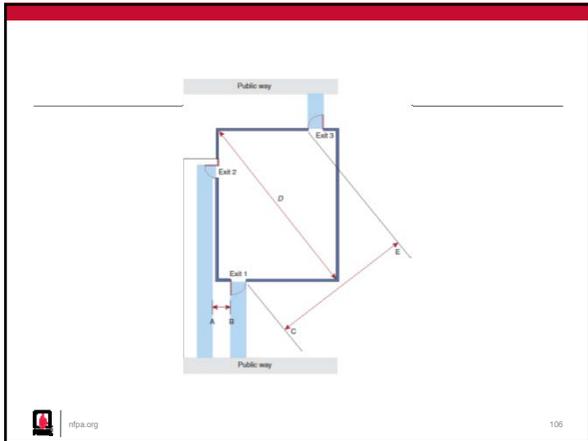


Remoteness

Where two exits, exit **accesses, or exit discharges** are required, they shall be located at a distance from one another not less than one-half the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between the nearest edge of the exits, exit accesses, or exit discharges, unless otherwise provided in 14.10.1.3.3 through 14.10.1.3.5.

14.10.1.3.2*





14.13.2.1.1 Illumination of Means of Egress

- Unless prohibited by occupancy chapter of NFPA 101, automatic, motion sensor-type lighting switches shall be permitted within the means of egress, provided that the switch controllers comply with all of the following:
 - (1) The switch controllers are listed.
 - (2) The switch controllers are equipped for fail-safe operation and evaluated for this purpose.
 - (3) The illumination timers are set for a minimum 15-minute duration.
 - (4) The motion sensor is activated by any occupant movement in the area served by the lighting units.
 - (5) The switch controller is activated by activation of the building fire alarm system, if provided.

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14.13.2.1.1 Emergency Light Testing

14.13.2.1.1 Testing of required emergency lighting systems shall be permitted to be conducted as follows:

- (1) Functional testing shall be conducted monthly with a minimum of 3 weeks and a maximum of 5 weeks between tests, for not less than 30 seconds, except as otherwise permitted by 14.13.2.1.1(2).
- (2) The test interval shall be permitted to be extended beyond 30 days with the approval of the AHJ.
- (3) Functional testing shall be conducted annually for a minimum of 1 1/2 hours if the emergency lighting system is battery powered.
- (4) The emergency lighting equipment shall be fully operational for the duration of the tests required by 14.13.2.1.1(1) and 14.13.2.1.1(3).
- (5) Written records of visual inspections and tests shall be kept by the owner for inspection by the AHJ. [101:7.9.3.1.1]

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Emergency Light Testing

14.13.2.1.2 Testing of required emergency lighting systems shall be permitted to be conducted as follows:

- (1) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall be provided.
- (2) Not less than once every 30 days, self-testing/self diagnostic battery-operated emergency lighting equipment shall automatically perform a test with a duration of a minimum of 30 seconds and a diagnostic routine.
- (3) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall indicate failures by a status indicator.
- (4) A visual inspection shall be performed at intervals not exceeding 30 days.
- (5) Functional testing shall be conducted annually for a minimum of 1 1/2 hours.
- (6) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall be fully operational for the duration of the 1 1/2 hour test.
- (7) Written records of visual inspections and tests shall be kept by the owner for inspection by the AHJ. [101:7.9.3.1.2]



Emergency Light Testing

14.13.2.1.3 Testing of required emergency lighting systems shall be permitted to be conducted as follows:

- (1) Computer-based, self-testing/self-diagnostic battery operated emergency lighting equipment shall be provided.
- (2) Not less than once every 30 days, emergency lighting equipment shall automatically perform a test with a duration of a minimum of 30 seconds and a diagnostic routine.
- (3) The emergency lighting equipment shall automatically perform annually a test for a minimum of 1 1/2 hours.
- (4) The emergency lighting equipment shall be fully operational for the duration of the tests required by 14.13.2.1.3(2) and 14.13.2.1.3(3).
- (5) The computer-based system shall be capable of providing a report of the history of tests and failures at all times.



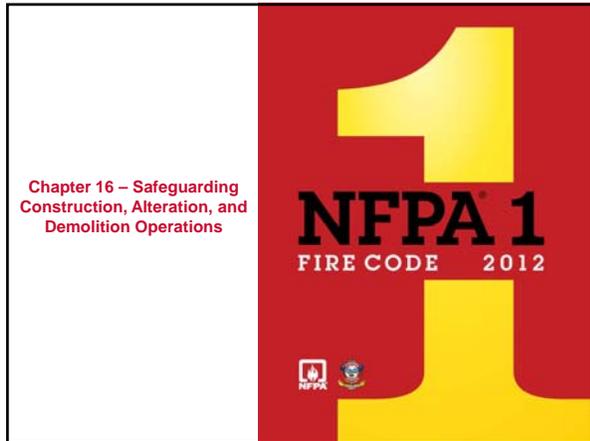
Pictograms

Where approved by the AHJ, pictograms in compliance with NFPA 170, Standard for Fire Safety and Emergency Symbols, shall be permitted.



14.14.3.2*





Chapter 16 Safeguarding Construction, Alteration, and Demolition Operations

- Trash Chutes
 - Safety plan approved by AHJ
 - Exterior
 - Noncombustible construction, or
 - Protected by AS

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Water Supply

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.

114

Chapter 18 FD Access and Water Supply



116



Application

- **18.1.1.1** This chapter shall apply to public and privately owned fire apparatus access roads.
- **18.1.1.2** This chapter shall apply to public and privately owned fire hydrant systems.

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18.1.1

FD Access

- **Access Box(es).** The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security. The access box(es) shall be of an approved type listed in accordance with UL 1037.



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18.2.2.1

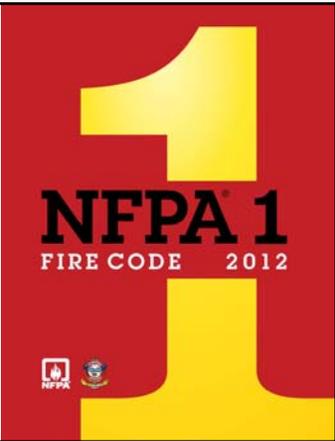
FD Access Roads

- Required access can be modified
 - One- and two-family dwelling protected by AS
 - Existing one- and two-family dwelling
 - ≤ 400 sqft
 - Private garages or carports
 - Agricultural buildings
 - Sheds or other detached buildings

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Chapter 20 – Occupancy Fire Safety



NFPA 1
FIRE CODE 2012



Assembly - Means of Egress Inspection

The building owner or agent shall inspect the means of egress to ensure it is maintained free of obstructions, and correct any deficiencies found, prior to each opening of the building to the public.



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20.1.5.1.1

Assembly – Exhibits

- Added NFPA 289 and HRR max.

 | 20.1.5.10.1.2

Assembly – Secured Seating

- Balcony and box seating areas that are separated from other areas by rails, guards, partial-height walls, or other physical barriers and have a maximum of 14 seats shall be exempt.

 | 20.1.5.10.1.2

Day-Care

- Door latches to closets now includes storage, kitchens, and other areas.

 | 20.3.2.2

Health Care

- Health care occupancies that find it necessary to lock means of egress doors shall, at all times, maintain an adequate staff qualified to release locks and direct occupants from the immediate danger area to a place of safety in case of fire or other emergency.

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Health Care

- Draperies and Curtains
- Combustible Decoration
 - Flame retardant or treated
 - 701
 - HRR \leq 100kW per 289
 - Artwork
 - \leq 20% No AS
 - \leq 30% AS
 - \leq 50% \leq 4 patients AS

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Chapter 21- Airports and Heliports

- Additional extracted material dealing with heliports

 | 126

Chapter 25 - Grandstands/Tents

25.2.4.2.1 Smoking shall not be permitted in any tent, unless approved by the authority having jurisdiction.



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Chapter 32 - Motion Picture and Television Production Studio Sound Stages and Approved Production Facilities - New

- Soundstages and approved production facilities
- Production locations



128

Chapter 33 Outside Storage of Tires - New



129

Chapter 34 General Storage - New

The provisions of NFPA 230 are incorporated in to this new chapter for regulations of general and high-piled storage facilities



Chapter 35 Animal Housing Facilities - New

General. All animal housing facilities shall comply with NFPA 150, Standard for Fire and Life Safety in Animal Housing Facilities and Chapter 35



Chapter 36 Telecommunication - New

36.1 General.

36.1.1 Telecommunication facilities shall comply with NFPA 76, *Standard for the Fire Protection of Telecommunications Facilities*.

36.1.2 Information technology equipment and information technology equipment areas shall comply with NFPA 75, *Standard for the Protection of Information Technology Equipment*.



Chapter 37 Fixed Guideway Transit and Passenger Rail Systems - NEW

- Meet NFPA 130.

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Chapter 40 Dust Explosion and Fire Prevention

- Extracted text from 654

 | 134

Chapter 41 Welding Cutting, and Other Hot Work

- Scope now includes Torch-applied roofing operations

 | 135

Chapter 42 - Refueling

- Revised extracts from NFPA 30A

 42.5.3.6

Chapter 42 - Refueling

42.3.3.2.7 The provisions of this subsection shall not prohibit the dispensing of liquid motor fuels in the open from a fuel dispensing system supplied by an existing aboveground tank, not to exceed 6000 gal (22,710 L), located at commercial, industrial, government, or manufacturing establishments, and intended for fueling vehicles used in connection with their business. Such dispensing shall be permitted provided the following conditions are met:

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Refueling

- (1) An inspection of the premises and operations has been made and approval has been granted by the AHJ.
- (2) The tank is safeguarded against collision, spillage, and overfill to the satisfaction of the AHJ.
- (3) The tank system is listed or approved for such aboveground use.
- (4) The tank complies with requirements for emergency relief venting, the tank and dispensing system meet the electrical classification requirements of NFPA 30A, and the tank complies with the provisions of 42.3.2.4.
- (5) The tank storage complies with Chapter 22 of NFPA 30.

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Chapter 42 - Refueling

- Inspection Requirements
 - Exterior
 - Documented weekly of fuel dispenser and hardware
 - Interior
 - Documented monthly of fuel dispensing equipment located inside dispenser cabinet
 - Leaks, damage, corrosion or weathering

 42.5.3.6.1 & 2

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Chapter 42 Refueling

42.5.3.6.1* Exterior Inspection. A visual inspection of the fuel dispenser and its associated hanging hardware (hose nozzle valve, hose, breakaway valve, and hose swivel) shall be conducted

- at least weekly and
- shall be documented.
- Documentation shall be available for review by the authority having jurisdiction upon request.



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Chapter 42 Refueling

42.5.3.6.2* Internal Dispenser Cabinet Inspection. An inspection of the fuel dispensing equipment that is located inside the dispenser cabinet shall be conducted.

- inspected for signs of leaks, damage, corrosion, or weathering, with particular attention to the sump area and joints and castings of fluid handling components.
- conducted at least monthly and shall be documented.
- Documentation shall be available for review by the authority having jurisdiction upon request.



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Signs

WARNING: It is unlawful and dangerous to dispense gasoline into unapproved containers.

No smoking.

Stop motor.

No filling of portable containers in or on a motor vehicle.

Place container on ground before filling.

Discharge your static electricity before fueling by touching a metal surface away from the nozzle.

Do not re-enter your vehicle while gasoline is pumping.

If a fire starts, **do not** remove nozzle—back away immediately.

Do not allow individuals under licensed age to use the pump.



42.7.2.5.4

LP-Gas Dispensing Devices

- Dispensing devices for LP-Gas shall meet all applicable requirements of Chapter 69 and NFPA 58. [30A:12.5.1]
- Dispensing devices for LP-Gas shall be located as follows:
 - (1) At least 10 ft. (3 m) from any dispensing device for Class I liquids
 - (2) At least 5 ft. (1.5 m) from any dispensing device for Class I liquids where the following conditions exist:
 - (a) The LP-Gas deliver nozzle and filler valve release no more than 0.1 oz (4 cm3) of liquid upon disconnection.
 - (b) The fixed maximum liquid level gauge remains closed during the entire refueling process.



42.8.5.1

Aircraft Fueling

- Vehicles that have engines equipped with an exhaust after-treatment device, such as a DPF, that requires the filter to be cleaned at high temperature (regenerated) while installed on the vehicle shall meet the requirements of 42.10.5.6.4.1 through 42.10.5.6.4.7.
- regeneration shall be performed only in area(s) designated by the AHJ
- regeneration shall not be performed within 100 ft. (30 m) of any aircraft refueling operations.



42.10.5.6

Regen Area

- Area shall be concrete or other high temperature-resistant material and shall be clear of any grass, soil, or flammable materials
- Remote location that is a minimum of 100 ft. (30 m) from the nearest aircraft parking location, airport terminal, or flammable storage or a minimum of 50 ft. (15 m) from any other building.
- Clearly marked with a minimum 2 ft. by 1 ft. (61 cm by 30 cm) sign reading "Vehicle DPF Regeneration Area," letters at least 3 in. (75 mm) high and color contrasting sign background.



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Regen Area - cont.

- Regeneration cycle shall be performed only by trained personnel, who shall remain with the vehicle until the regeneration cycle is complete.
- Vehicle shall be visually inspected for any signs of fluid leaks under or around the vehicle before regeneration is initiated. DPF regeneration shall not be initiated if there are any signs of any fluid leaks on or beneath the vehicle.
- Once a regeneration cycle is started, it shall be completed without interruption.



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Regen – cont.

- After the regeneration process is successfully completed, the vehicle shall be permitted to return to normal service.
- Problems occurring during the regeneration cycle shall be corrected prior to the vehicle returning to normal service.
- Aircraft refueling operations shall not be initiated if the regenerative system indicates regeneration is required.



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Chapter 43 – Spraying, Dipping, and Coating Using Flammable or Combustible Materials

- Section 43.1 shall also apply to spray application of water-borne, water-based, and water-reducible materials that contain flammable or combustible liquids or that produce combustible deposits or residues.
- Section 43.1 shall not apply to the following:
 - (1)*Spray operations that use less than 1 L (33.8 fl oz) of flammable or combustible liquid in any 8-hour period
 - (2)*Spray application processes or operations that are conducted outdoors
 - (3)*Portable spraying equipment that is not used repeatedly in the same location
 - (4) Use of aerosol products in containers up to and including 1 L (33.8 oz) capacity that are not used repeatedly in the same location
 - (5) Spray application of noncombustible materials
 - (6) The hazards of toxicity or industrial health and hygiene



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Electrical Classification

Zone 20-22 for combustible dust locations



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Material Storage

- MAQ



43.1.6

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New Processes

- Limited finishing workstations
- Powder coating
- Dipping, Coating, and Printing Processes

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Chapter 45 - Combustible Fibers

- Moved from Chapter 62 to 45.

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Chapter 50 Commercial Cooking

50.2.1.9* Cooking equipment used in fixed, mobile, or temporary concessions, such as trucks, buses, trailers, pavilions, tents, or any form of roofed enclosure, shall comply with NFPA 96 or this chapter unless otherwise exempted by the AHJ in accordance with 1.3.2 of NFPA 96.

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Chapter 50 Commercial Cooking

- New Automatic fire-extinguishing systems shall comply with ANSI/UL 300.
- Existing systems
 - when changes in the cooking media,
 - positioning,
 - or replacement of cooking equipment occur
- UL 300



50.4.4.3

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Chapter 50 – Commercial Cooking Equipment

50.4.4.7 Modifications to Existing Hood Systems.

50.4.4.7.1 Any abandoned pipe or conduit from a previous installation shall be removed from within the hood, plenum, and exhaust duct.

50.4.4.7.2 Penetrations and holes resulting from the removal of conduit or piping shall be sealed with listed or equivalent liquidtight sealing devices.

50.4.4.7.3 The addition of obstructions to spray patterns from the cooking appliance nozzle(s) such as baffle plates, shelves, or any modification shall not be permitted.

50.4.4.7.4 Changes or modifications to the hazard after installation of the fire-extinguishing systems shall result in reevaluation of the system design by a properly trained, qualified, and certified person(s).



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ITM

50.5.2.4* Fusible links of the metal alloy type and automatic sprinklers of the metal alloy type shall be replaced at least semiannually except as permitted by 50.5.2.6 and 50.5.2.7.

50.5.2.5 The year of manufacture and the date of installation of the fusible links shall be marked on the system inspection tag.

50.5.2.5.1 The tag shall be signed or initialed by the installer.

50.5.2.5.2 The fusible links shall be destroyed when removed.

50.5.2.6* Detection devices that are bulb-type automatic sprinklers and fusible links other than the metal alloy type shall be examined and cleaned or replaced annually.

50.5.2.7 Fixed temperature-sensing elements other than the fusible metal alloy type shall be permitted to remain continuously in service, provided they are inspected and cleaned or replaced if necessary in accordance with the manufacturer's instructions, every 12 months or more frequently to ensure proper operation of the system.



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Cooking Equipment Maintenance

50.5.7.1 Inspection and servicing of the cooking equipment shall be made at least annually by properly trained and qualified persons.

50.5.7.2 Cooking equipment that collects grease below the surface, behind the equipment, or in cooking equipment flue gas exhaust, such as griddles or charbroilers, shall be inspected and, if found with grease accumulation, cleaned by a properly trained, qualified, and certified person acceptable to the AHJ.



Cooking Oil Storage Tank Systems

50.6.3 Commercial Kitchen Cooking Oil Storage Tank Systems. Storage of cooking oil (grease) in commercial cooking operations utilizing aboveground tanks to store cooking oils with a capacity greater than 60 gal (227 L) shall also comply with 50.6.3.1 through 50.6.3.5.

50.6.3.1 Cooking Oil Classification. For purposes of this section, cooking oil shall be classified as a Class IIIB liquid unless otherwise determined by testing.

50.6.3.2 Aboveground Storage Tanks. Cooking oil storage tanks shall be listed in accordance with ANSI/UL 142 or ANSI/UL 80, and shall be installed in accordance with Chapter 66 and the aboveground tank manufacturer's instructions.

50.6.3.3 System Components. Cooking oil storage system components, including but not limited to piping, connections, fittings, valves, tubing, and other related components used for the transfer of cooking oil from the cooking appliance to the storage tank, and from the storage tank to the discharge point, shall be installed in accordance with 66.22.1.

50.6.3.4 Tank Venting. Normal and emergency venting for cooking oil storage tanks shall terminate outside the building as specified in 66.21.4.3, 66.22.7.1, and NFPA 30.

50.6.3.5 Electrical Equipment. Electrical equipment used for the operation and heating of the cooking grease storage system shall be listed and comply with 66.7.3 and NFPA 70.



Chapter 52 – Stationary Storage Battery Systems

- Title change removed lead-acid
- Added Lithium-ion and lithium metal polymer batteries



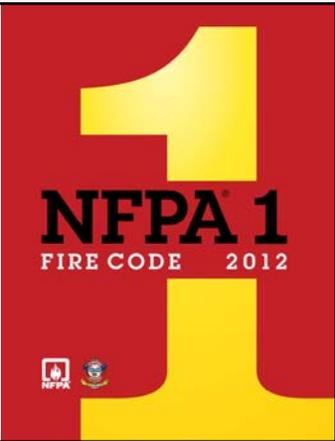
Chapter 54 – Ozone Gas-Generating Equipment

- New Chapter
- Requirements were moved from Annex G

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**Module 16
Part VI Hazardous
Materials**



NFPA 1
FIRE CODE 2012



Part VI Haz Mat

- 60 Haz Mat
- 61 Aerosol
- 62 Reserved
- 63 Compressed Gases
- 64 Corrosive
- 65 Explosives, Fireworks, Model Rocketry
- 66 Flammable and Combustible Liquids
- 67 Flammable Solids
- 68 Highly Toxic
- 69 LPG/LNG

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Part VI Haz Mat

- 70 Oxidizers
- 71 Pyrophoric
- 72 Unstable
- 73 Water Reactive
- 74 Ammonium Nitrate
- 75 Organic Peroxide

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Classifying Hazardous Materials

- Materials classified per Chapter 3
- Annex B Hazardous Materials Classifications
- *Mixtures* must be classified as a *whole*
- Buildings with *multiple* hazards, *all* hazards must be addressed



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Annex B

Chapter 60 Hazardous Materials

- Updated extracting sections from NFPA 400



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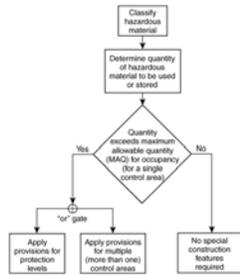
MAQ Tables

- TIA Issued on Tables
- Table for each occupancy



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How to Use Chapter 60



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Activity

Is this permitted?
Junior High School
2nd floor lab area
8 lbs of Flammable solid



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Activity

- Educational use Table 60.4.2.1.3
- Flammable Solid - 5lb
- Control Areas Table 60.4.2.2.1
- 2nd floor – 75% MAQ, 3 permitted, 1 hour FRR
- $5(.75)=3.75$
- What can we do?

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Table 60.4.2.1.3 Maximum Allowable Quantities (MAQ) of Hazardous Materials per Control Area in Educational Occupancies

Material	Class	Solid	Liquid ^m	Gas ^d (at NTP)
Flammable and combustible liquids ^{h,e,l,n}	See note	See note	See note	See note
Cryogenic fluid	Flammable Oxidizing	NA NA	10 gal. 10 gal.	NA NA
Explosives ^{k,e,l,g}	See note	See note	See note	See note
Flammable gas ^h	Gaseous Liquefied	NP NP	NP 20 lb	NP NA
Consumer fireworks	See note	See note	See note	See note
Flammable solid	NA	→ 5 lb	N/A	N/A

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Table 60.4.2.2.1 Design and Number of Control Areas

Floor Level	Maximum Allowable Quantity per Control Area (%) ^a	Number of Control Areas per Floor	Fire Resistance Rating for Fire Barriers ^f (hr)
Above grade plane			
5-9	5.0	1	2
7-9	5.0	2	2
4-6	12.5	2	2
3	50.0	2	1
2	75.0	3	1
1	100.0	4	1
Below grade plane			
1	75	3	1
2	50	2	1
Lower than 2	NA	NA	NA

NA: Not applicable.
^aPercentages represent the maximum allowable quantities per control area shown in Table 60.4.2.1.1.3, with all the increases permitted in the footnotes of that table.
^fFire barriers are required to include floors and walls, as necessary, to provide a complete separation from other control areas. [5000: Table 51.2.5.1.1] [400: Table 5.2.2.1]

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Chapter 63 Compressed Gases and Cryogenic Fluids

- Extracts from NFPA 55 updated.



172

Chapter 64 – Corrosive Solids and Liquids

- Over MAQ comply with NFPA 400.



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Chapter 66 Flammable and Combustible Liquids

Updated text from NFPA 30

Clarified

- Alcohol-based Hand Rub not within scope
- Installations in compliance with 99 and 101



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Management of Security

66.6.10.1.1 This section shall apply to the management methodology used to identify, evaluate, and control the security hazards involved in the processing and handling of flammable and combustible liquids. [30:6.10.1.1]

66.6.10.1.2 These hazards include, but are not limited to, vulnerability to terrorist or other malicious attacks.

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Management of Security

66.6.10.2 General. The methodology used shall incorporate a risk-based approach to site security and shall have the following objectives:

- (1) Identification and evaluation of security risks
- (2) Evaluation of the security performance of the facility
- (3) Evaluation of protection for employees, the facility itself, the surrounding communities, and the environment. (See Annex G of NFPA 30 for more detailed information.)

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Management of Security

66.6.10.3 Specific Requirements.

66.6.10.3.1 Operations involving flammable and combustible liquids shall be reviewed to ensure that security vulnerabilities identified during the security vulnerability analysis (SVA) are addressed in a facility security program, with corresponding fire prevention and emergency action plans and drills. [30:6.10.3.1]

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Management of Security

66.6.10.3.2 The balance of physical, electronic, and personnel techniques used to respond to the SVA shall be determined by means of an engineering evaluation of the operation and application of sound security principles. This evaluation shall include, but not be limited to, the following:

- (1) Assessing overall facility
- (2) Evaluating vulnerabilities
- (3) Assessing threats/consequences
- (4) Assessing physical factors/attractiveness
- (5) Identifying mitigation factors
- (6) Conducting security assessment or gap analysis

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Management of Security

66.6.10.3.3 A written emergency action plan that is consistent with available equipment and personnel shall be established to respond to fires, security, and related emergencies. This plan shall include the following:

- (1) Procedures to be followed such as initiating alarms, notifying appropriate agencies, evacuating personnel, and controlling and extinguishing the fire
- (2) Procedures and schedules for conducting drills of these procedures
- (3) Appointment and training of personnel to carry out assigned duties
- (4) Maintenance of fire protection and response equipment
- (5) Procedures for shutting down or isolating equipment to reduce the release of liquid
- (6) Alternate measures for the safety of occupants

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Management of Security

66.6.10.3.5 The security management review conducted in accordance with this section shall be repeated under the following conditions:

- (1) For an initial review of all new relevant facilities and assets
- (2) When substantial changes to the threat or process occur
- (3) After a significant security incident
- (4) For periodic revalidation of the SVA

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Chapter 70 Oxidizers and Organic Peroxides

- Changed to reference Chapter 60 and NFPA 400
- text deleted

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Chapter 71 Pyrophoric Solids and Liquids

- Changed to reference Chapter 60 and NFPA 400
- text deleted

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Chapter 72 Unstable (reactive Solids and Liquids

- Changed to reference Chapter 60 and NFPA 400
- text deleted

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183

Chapter 73 Water-Reactive Solids and Liquids

- Changed to reference Chapter 60 and NFPA 400
- text deleted

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Chapter 74 Ammonium Nitrate

- New
- Reference 400

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Chapter 75 Organic Peroxide Solids and Liquids

- New
- Reference 400

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