



Office of Education
and Data Management

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Career Development

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Significant Changes to the Connecticut Fire Prevention Code and Part IV of the Connecticut Fire Safety Code

Joseph Kingston, Supervisor;
Michael Kellett, Fire and Life Safety Specialists;
Chuck Kiessling, Fire and Life Safety Specialists;
Office of State Fire Marshal

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Changes to the 2018 Fire Safety Code Part IV and Fire Prevention Code

Presented by:

Joe Kingston, Fire and Life Safety Supervisor
Mike Kellett, Fire and Life Safety Specialist
Chuck Kiessling, Fire and Life Safety Specialist

Office of The State Fire Marshal
450 Columbus Blvd, Suite 1304
Hartford, CT 06103
(860) 713-5750

Public Service Announcement. Totally off the subject: Seismic Bracing of Sprinkler systems.



Division of Construction Services
Office of the State Building Inspector

February 22, 2018

Mr. Brian Sargent, SET, CPFS
Mack Fire Protection LLC
15 Industrial Park Place
Middletown, CT 06457

Dear Chief Sargent:

RE: 1-02-18 - Seismic Bracing for Sprinkler Piping

This is in response to your email dated January 29, 2018 in which you are seeking a formal interpretation to the following question.

Question

Is fire sprinkler piping exempt from seismic bracing in buildings with a Seismic Design Category B?

ANSWER:

Yes, fire sprinkler piping in Seismic Design Category B falls under Exemption 4 in ASCE-7 section 13.1.4 and would not be required to have seismic bracing.

However, fire sprinkler piping is not categorically exempt from seismic bracing. Section 1613.1 of the 2012 International Building Code portion of the 2012 State Building Code requires every structure to be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7 - 2010 Edition. The determination of the applicability of bracing for a sprinkler system is based on the Seismic Design Category of a building and the Component Importance Factor of the system being considered.

The Seismic Design Category for a building is a function of several parameters, including site classification of the soils, the spectral acceleration at the building site and the Risk Category of a building. In Connecticut, the biggest variable is the seismic Site Class which is related to the underlying soil conditions. The most common is seismic Site Class is D, which is also the default site class per ASCE 7.

Section 13.1.3 of ASCE 7 establishes the Component Importance Factor as either 1.0 or 1.5. Sprinklers would be considered a life-safety component required to function after an earthquake, and would have a component importance factor of 1.5.

Based on seismic Site Class D and the maximum considered earthquake spectral accelerations, the majority of the structures in Connecticut in Risk Categories I, II and III would fall under Seismic Design Category B and, as such, would be exempt from the seismic bracing requirements for sprinkler systems under Exemption 4 of Section 13.1.4 of ASCE 7.

Risk Category IV structures under the same site conditions would fall under Seismic Design Category C and would be required have seismic bracing for sprinkler systems, as well as any other mechanical components with a Component Importance Factor of 1.5.

If a Risk Category IV structure is constructed on quality soils or rock that result in a lower seismic Site Class (A, B or C), it is conceivable that a Risk Category IV structure would fall under Seismic Design Category B or possibly even Seismic Design Category A, eliminating the need for seismic bracing of sprinkler piping even in essential structures.

Sincerely,

Joseph V. Cassidy, P.E.
State Building Inspector

Bottom line: This Must be determined by B.O. & Designer

Changes to the 2018 Fire Safety Code Part IV and Fire Prevention Code

2018 Connecticut State Fire Safety Code
2015 Edition of NFPA 101
With Connecticut Amendments
2018 Connecticut State Fire Prevention Code
2015 Edition of NFPA 1
With Connecticut Amendments

Changes to the 2018 Fire Safety Code Part IV and Fire Prevention Code

Fire Safety Code and Fire Prevention Code

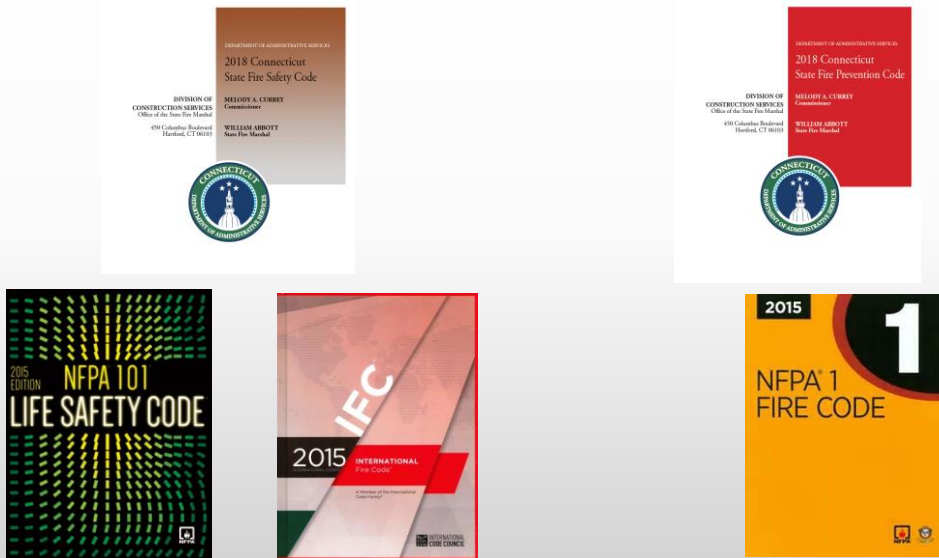
The yin and yang



Fire Safety Code and Fire Prevention Code The yin and yang

In Chinese philosophy, yin and yang describe how seemingly opposite or contrary forces may actually be complementary, interconnected, and interdependent in the natural world, and how they may give rise to each other as they interrelate to one another. Many tangible dualities such as light and dark are thought of as physical manifestations of the duality symbolized by yin and yang.

What the 2018 codes will look like



Fire Safety Code and Fire Prevention Code The yin and yang

Fire Prevention Code

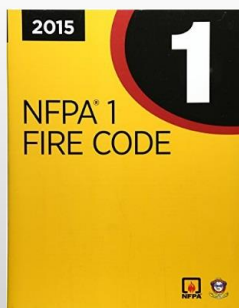
Sec. 100.10 Where an area addressed in this code pertains to a construction feature, the Connecticut State Fire Safety Code shall prevail. Where the CSFSC or SBC are silent on an issue, the provisions of this code shall apply.

Fire Safety Code

Sec. 100.11 Where an area addressed in this code pertains to an operational or maintenance feature, the Connecticut State Fire Prevention Code shall prevail.

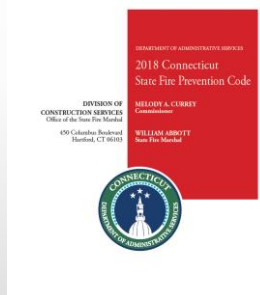
Changes to the 2018 Fire Prevention Code (CSFPC)

2018 Connecticut State Fire Prevention Code 2015 Edition of NFPA 1 With Connecticut Amendments



Different Look for SFPC

- This code adopted by the modified process, (29-291e) the code looks slightly different than the last version. (Resembles FSC)



Changes to the 2018 Fire Prevention Code (CSFPC)

Example of old:

Sec. 29-291a-1a. The Connecticut State Fire Prevention Code: Title and Administration (a) The Regulations of the Department of Administrative Services, this section and sections 29-291a-2a to 29-291a-10a, inclusive, of the Regulations of Connecticut State Agencies and their adopted standards, shall be known as the Connecticut State Fire Prevention Code, hereinafter referred to as “the code” or “this code”.

Changes to the 2018 Fire Prevention Code (CSFPC)

Example of new:

Sec. 100 Title, Administration, and Applicability Sec. 100.1 The Connecticut State Fire Prevention Code and the adopted standards, as amended, shall be known as the Connecticut State Fire Safety Prevention, hereinafter referred to as “the code” or “this code”.

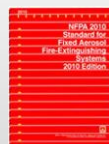
Changes to the 2018 Fire Prevention Code (CSFPC)

2.2 NFPA Publications.

NFPA 2, *Hydrogen Technologies Code*, 2011 Edition.



NFPA 2010, Standard for Fixed Aerosol Fire Extinguishing Systems, 2010 Edition.



Changes to the 2018 Fire Prevention Code (CSFPC)

Table 1.12.8(a) Permit Requirements:
Parade Floats **Deleted by CSFPC.**

(Del) 10.16
Parade Floats.
Delete Section



Changes to the 2018 Fire Prevention Code (CSFPC)

NFPA 1 2012 Edition, Section 10.4 was Maintenance, Inspection, and Testing and is deleted by NFPA in 2015 because it duplicated requirements of chapter 4.

In the previous code, Connecticut Deleted Chapter 4 in it's entirety.

Maintenance and testing items addressed under Section 4.5.8 are no longer deleted in order to maintain the requirements formerly in Section 10.4.

Changes to the 2018 Fire Prevention Code (CSFPC)

10.10.9.3 (Added by NFPA 1) The use of unmanned, free-floating sky lanterns and similar devices utilizing an open flame shall be prohibited.

Addressed by General Information Notice 13-01 that describes the Office of State Fire Marshal's decision regarding Sky Lanterns. Pursuant to Connecticut General Statute §29-357, it is illegal for the general public to sell, possess or use such devices as they are considered fireworks.

Changes to the 2018 Fire Prevention Code (CSFPC)

11.10 Two-Way Radio Communication Equipment Systems.

(Amd) **11.10.1** Where installed, two-way radio communication enhancement systems shall be maintained in accordance with NFPA 72 and AHJ.

Changes to the 2018 Fire Prevention Code (CSFPC)

12.4.6 Care and Maintenance of Fire Doors and Other Opening Protectives.

Requirements for maintenance of fire doors and other opening protectives extracted from NFPA 80 and addressed directly by NFPA 1.



Changes to the 2018 Fire Prevention Code (CSFPC)

12.3.3.3.1 Describes qualifications

12.4.6.6.2 Requires documentation of inspection

12.4.6.6.4 Establishes frequency of inspection

(NFPA 80 may contain additional requirements)

Changes to the 2018 Fire Prevention Code (CSFPC)

Section 12.4.6.6.3.5.2 Addresses swinging doors with builder's hardware or fire door hardware. A minimum list of items required to be inspected by the building owner or their designated representative is provided in this section.

(NFPA 80 may contain additional requirements)

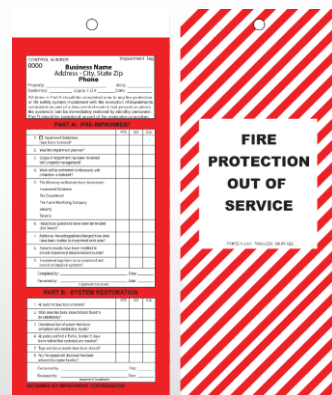
Changes to the 2018 Fire Prevention Code (CSFPC)

Some items listed in NFPA 1 Section 12.4.6.6.3.5.2 include:

- Labels are clearly visible and legible
- No open holes or breaks exist in door or frame
- Glazing is intact and secure
- The door frames, hinges, hardware
- No parts are missing or broken
- The self-closing device is operational & door closes properly

Changes to the 2018 Fire Prevention Code (CSFPC)

13.3.3.4.1.10.1 Where an impairment to a water-based fire protection system occurs or is identified during inspection, testing, or maintenance activities, the procedures outlined in Chapter 15 of NFPA 25 shall be followed, including the attachment of a tag to the impaired system.



Changes to the 2018 Fire Prevention Code (CSFPC)

NFPA 25, Chapter 15 contains impairment procedures including procedures to be implemented during preplanned and emergency impairments. Among these, is a requirement to arrange for Evacuation, fire watch, temporary water supply, or program to eliminate potential ignition sources, when a fire protection system is out of service for more than 10 hours.

Changes to the 2018 Fire Prevention Code (CSFPC)

Although NFPA 25 discusses 10 hour shut downs, **Code trumps standard (Part II section 2.1).**

CSFPC 13.1.8 Calls for AHJ notification upon shutdown of any fire protection system

and

CSFPC 13.1.9 States when a fire protection system is out of service for more than 4 hours in a 24-hour period, the AHJ shall be permitted to require the building to be evacuated or an approved fire watch to be provide for all portion left unprotected by the fire protection system shutdown.

Changes to the 2018 Fire Prevention Code (CSFPC)

(Amd) **13.6.1.2* Where Required.** Fire extinguishers shall be provided where required by this Code as specified in Table 13.6.1.2 and the referenced codes and standards listed in Chapter 2 of this code, as well as where required by the Connecticut State Fire Safety Code and its referenced codes and standards.

Changes to the 2018 Fire Prevention Code (CSFPC)

(Amd) Table 13.6.1.2 Portable Fire Extinguishers Required Occupancy Use Where Required:

	New	Existing
Ambulatory health care group B medical occupancies	Yes	Yes
Apartment and dormitory group R-2 occupancies ^a	No	No
Assembly group A occupancies ^b	Yes	No
Bed and Breakfast Establishments Group R-1 occupancies ^f	Yes	Yes
Business group B occupancies	Yes	No
Day-care group I-4 & E occupancies	Yes	No
Detention and correctional group I-3 occupancies ^{c,d}	Yes	Yes
Educational group E occupancies	Yes	No
Health care group I-1 and I-2 occupancies	Yes	Yes

Changes to the 2018 Fire Prevention Code (CSFPC)

Table 13.6.1.2 Portable Fire Extinguishers Required

Occupancy Use Where Required:	New	Existing
Hotel group R-1 occupancies	Yes	No
Industrial group F occupancies	Yes	No
Industrial group H occupancies	Yes	Yes
Lodging and rooming house group R-1 & R-2 occupancies	Yes	No
Mercantile group M occupancies	Yes	No
One- and two-family dwelling occupancies	No	No
Residential board & care, group R-4 & small I-2 occupancies	Yes	No
Storage group S and H occupancies ^e	Yes	No

Changes to the 2018 Fire Prevention Code (CSFPC)

^aPortable fire extinguishers shall be permitted to be located at exterior locations or interior locations so that all portions of the buildings are within 75 ft (22.8 m) of travel distance to an extinguishing unit.

^bPortable fire extinguishers are not required in seating or outdoor performance areas.

^cAccess to portable fire extinguishers shall be permitted to be locked.

^dPortable fire extinguishers shall be permitted to be located at staff locations only.

Changes to the 2018 Fire Prevention Code (CSFPC)

^eIn storage areas where forklift, powered industrial truck, or cart operators are the primary occupants, fixed extinguishers, as specified in NFPA 10, need not be provided when:

- (1) Use of vehicle-mounted extinguishers is approved by the AHJ.
- (2) Each vehicle is equipped with a 10 lb, 4A:80-B:C extinguisher affixed to the vehicle using a mounting bracket approved by the extinguisher manufacturer or the AHJ for vehicular use.
- (3) Not less than two spare extinguishers of equal or greater rating are available onsite to replace a discharged extinguisher.
- (4) Vehicle operators are trained in the proper operation and use of the extinguisher.
- (5) Inspections of vehicle-mounted extinguishers are performed daily.

^fPortable fire extinguishers shall be provided in bed and breakfast establishments as required by the CSFSC.

Changes to the 2018 Fire Prevention Code (CSFPC)

Other fire extinguisher requirements that were in the code are still there including but not limited to:

(Add) **13.6.1.2.1** Portable fire extinguishers shall be required in all occupancies, outside and immediately adjacent to the entrance to all special hazardous areas except general storage areas. If the only entrance to a special hazardous area is from the exterior of the building, the fire extinguisher may be located just inside the entrance door.

(Add) **13.6.1.2.2** Portable fire extinguishers shall be required where commercial cooking equipment is utilized.

Changes to the 2018 Fire Prevention Code (CSFPC)

13.7.1.4.3* Fire alarm system impairment procedures shall comply with *NFPA 72, National Fire Alarm and Signaling Code*.

NOTE; 13.1.8 AND 13.1.9 previous slides still applies and Code Trumps Standard (Part II section 2.1).

Changes to the 2018 Fire Prevention Code (CSFPC)

13.7.1.5* Impaired and Nuisance Alarm Prone Systems.

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

Changes to the 2018 Fire Prevention Code (CSFPC)

13.7.1.5.3 The AHJ shall be authorized to require standby fire personnel or an approved fire watch in accordance with 1.7.16 at premises in which required fire alarm systems are impaired or classified as chronic nuisance alarm prone systems.

Keep in mind part I section 108 of the CSFPC has provisions for citations for failure to maintain.

Changes to the 2018 Fire Prevention Code (CSFPC)

13.7.1.5.4 Fire alarm systems that have produced five or more nuisance alarms in a 365-day period shall be classified as chronic nuisance alarm prone systems.

Examples of nuisance alarms include; alarms due to improper maintenance of an alarm system, air handling system, sprinkler system, or improper device installation, improper device location and the like. There are grey areas. Be careful.

Changes to the 2018 Fire Prevention Code (CSFPC)

Improper maintenance



Changes to the 2018 Fire Prevention Code (CSFPC)

Improper Installation/location

Locations shall comply with NFPA 72 and manufactures installation instructions.

Changes to the 2018 Fire Prevention Code (CSFPC)

Frequent alarm activations **not** classified as nuisance alarms:

Over cooked dinner
(senior housing complex's electronic dinner invitation to the fire department)



Changes to the 2018 Fire Prevention Code (CSFPC)

14.8.1.2

Occupant Load Factor Table Business Use Concentrated Business Use 50 sq. ft. gross

(Also revised in CSFSC Table 7.3.1.2)



Changes to the 2018 Fire Prevention Code (CSFPC)

14.8.1.2

Occupant Load Factor Table

Assembly Use Exhibit gallery and museums 30 sq. ft. net



Changes to the 2018 Fire Prevention Code (CSFPC)

In the past CSFPC deleted Extinguisher Training throughout chapter 20. This section of the model code is now adopted by CT.



Changes to the 2018 Fire Prevention Code (CSFPC)

(Amd) **20.1.5.5.4.12.2** At least one battery cable shall be removed from the batteries used to start the vehicle engine, and the disconnected battery cable shall then be taped, except where the manufacturer's instructions indicate that this may cause damage to the vehicles operating systems.



Changes to the 2018 Fire Prevention Code (CSFPC)

20.1.5.6.4* and **20.1.5.6.5** Training for the duties and responsibilities of crowd managers has been expanded upon with more detail.



Changes to the 2018 Fire Prevention Code (CSFPC)

(Amd) 20.5 Residential Board and Care Occupancies Including Residential Group R-4, Institutional Group I-1 **and Small I-2 Homes** as described in the CSFC.

*Small I-2 Homes are unique to Connecticut and not addressed in NFPA 1 **this was added to address operating features.***

Changes to the 2018 Fire Prevention Code (CSFPC)

(Add) **20.12.5 Storage and Display of Sparklers and Fountains.** The display and storage of consumer fireworks at retail establishments shall be in accordance with the provisions of the 2006 edition of NFPA 1124, *Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles*, except as modified in sections 20.12.5.1 to 20.12.5.3, inclusive, of this code.

Also see: (Add) **65.10 Sale, Handling, and Storage of Sparklers and Fountains.**

Changes to the 2018 Fire Prevention Code (CSFPC)

(Amd) **25.1.1** The location, protection, and maintenance of grandstands and bleachers, folding and telescopic seating, **tents** and membrane structures shall meet the requirements of this chapter. Seating facilities located in the open air or within enclosed or semi-enclosed structures, such as **tents** membrane structures and stadium complexes, shall comply with the CSFSC.

Changes to the 2018 Fire Prevention Code (CSFPC)

CFMA will be including tent ballasting at spring conference.



Changes to the 2018 Fire Prevention Code (CSFPC)

Tents

All things construction, maintenance and operational for tents now come from Part III. Each time a tent is erected it is new.



Changes to the 2018 Fire Prevention Code (CSFPC)

Tent requirements in NFPA 1 not addressed by IFC have been carried to **CSFSC** as amendments. Below are some examples:

CSFSC (Add) 3103.12.9 Tent stakes adjacent to any means of egress from any tent open to the public shall be railed off, capped, or covered so as not to present a hazard to the public.

CSFSC (Amd) 3105.3 Permits. If required shall be in accordance with the Connecticut State Fire Prevention Code.

Changes to the 2018 Fire Prevention Code (CSFPC)

On Demand Fueling. What is it?



On Demand Fueling



Changes to the 2018 Fire Prevention Code (CSFPC)

Fueling Chapter 42

(Add) 42.12 On Demand Fueling

(Add) 42.12.1 On demand Fueling shall be in accordance with the requirements of NFPA 30A

(Add) 42.12.1.1 The 2018 edition of NFPA 30A as adopted by this Code is amended to read as follows:

NFPA 30A Section 14.2.3.1. The vehicle operator training shall be approved by the State Fire Marshal.

Changes to the 2018 Fire Prevention Code (CSFPC)

(Amd) Section 2.2 NFPA Publications

NFPA 30 Flammable and Combustible liquids Code, 2018 edition

NFPA 30A Code for Motor Fuel Dispensing Facilities and Repair Garages, 2018 Edition

(Amd) Part I Section 108 (Citation Process)

Section 42.12 On demand Fueling

Changes to the 2018 Fire Prevention Code (CSFPC)

(Amd) **50.1.1*** The operation, inspection and maintenance of commercial cooking equipment having a commercial kitchen exhaust hood as required elsewhere in this code shall comply with this chapter and NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. This chapter shall not apply to Type II kitchen exhaust hoods as defined by the International Mechanical Code®.

*Reference to NFPA 96 added to clarify that **operation, inspection and maintenance** requirements of NFPA 96 and this code apply.*

Changes to the 2018 Fire Prevention Code (CSFPC)

Commercial kitchen cooking oil storage tank system requirements relocated to 66.19.7 by NFPA (was 50.6.3)



Changes to the 2018 Fire Prevention Code (CSFPC)

(Add) **65.10 Sale, Handling, and Storage of Sparklers and Fountains.**

(Add) **65.10.1 General Requirements.** Retail sales of sparklers and fountains shall comply with the requirements of this chapter and the requirements for consumer fireworks in NFPA 1124 the 2006 edition as amended by the State of Connecticut.

Consumer Fireworks is no longer addressed nor defined by NFPA 1. CSFPC added 65.10 to maintain sparkler requirements. CSFPC still uses 2006 edition of NFPA 1124 which addresses Consumer Fire works.

Changes to the 2018 Fire Prevention Code (CSFPC)

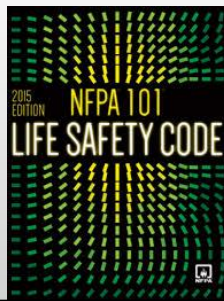
Chapter will also contain added Connecticut language that acts as a point to the new explosive regulations that are permitted through D.E.S.P.P. and/or O.S.F.M.

Changes to the 2018 Fire Safety Code (CSFSC)

2018 Connecticut State Fire Safety Code

2015 Edition of NFPA 101

With Connecticut Amendments



Changes to the 2018 Fire Safety Code (CSFSC)

3.3.66

Definitions for one family dwelling units in Fire Safety Code and Fire Prevention Code will be coordinated along with the building.

Changes to the 2018 Fire Safety Code (CSFSC)

7.2.1.15 Inspection of door openings; although, this is a maintenance item, it is part of the code flow from Fire Prevention Code, regarding inspection of door openings. This applies to all door openings, not just fire doors.

CSFPC 20.1.5.1.3 for assembly, 20.2.4.3.3 for educational and others require door inspections in accordance with 7.2.1.15 of NFPA 101.

Changes to the 2018 Fire Safety Code (CSFSC)

Chapter 21 Existing Ambulatory Health Care Occupancies

Chapter rewritten to be self contained and **not rely on provisions of Chapter 39.**

There are CT Amd and Add sections made to bridge the gap between existing ambulatory health care occupancies that were acceptable under the previous code and this edition.

Changes to the 2018 Fire Safety Code (CSFSC)

- Amd 23.4.5.1.4 The lockup shall be permitted to comply with the requirements for the predominant occupancy in which the lockup is placed, provided that all of the following criteria are met:
- See added text:
- **(6) A reliable means of two way communication, or a video monitor, to a constantly attended location shall be provided in lockup areas that are not under constant direct staff supervision.**

Changes to the 2018 Fire Safety Code (CSFSC)

29.2.2.2.2.2, and 31.2.2.2.2.2

Delayed-egress locks complying with 7.2.1.6.1 shall be permitted, ~~provided that not more than one such device is located in any one egress path.~~

NFPA no longer limits number of delays in egress path



Changes to the 2018 Fire Safety Code (CSFSC)

(Amd) **31.1.3.3** Multiple dwelling units may be located above a nonresidential occupancy only where one of the following conditions exists:

(3) Where the dwelling units are located above a nonresidential occupancy that is protected by an automatic fire detection system, with detection in the nonresidential occupancy **and occupant notification throughout the building** in accordance with Section 9.6.

This was added to clarify the intent of this section

Changes to the 2018 Fire Safety Code (CSFSC)

(Add) **33.1.1.1.1** It shall be recognized that, in buildings housing certain types of patients or having detention rooms or a security section, it might be necessary to lock doors and bar windows to confine and protect building inhabitants. In such instances, the State Fire Marshal shall make appropriate modifications to those sections of this code that would otherwise require means of egress to be kept unlocked.

Changes to the 2018 Fire Safety Code (CSFSC)

New allowance by NFPA 101 **33.2.2.5.5.3** Door-locking arrangements **shall be permitted** where the clinical needs of residents require specialized security measures.....

(Amd) **33.2.2.5.5.3** Door-locking arrangements **may be permitted by Section 33.1.1.1.1** where the clinical needs of residents require specialized security measures

Changes to the 2018 Fire Safety Code (CSFSC)

33.2.3.5.7.2 Where an automatic sprinkler system is installed, attics not used for living purposes, storage, or fuel-fired equipment shall meet one of the following criteria:

(5) Attics shall be protected by heat alarms arranged to provide occupant notification in accordance with 33.2.3.4.2.

An extra option added by NFPA in lieu of heat detection tied to a full fire alarm system.

Changes to the 2018 Fire Safety Code Part IV and Fire Prevention Code

Joe Kingston, Fire and Life Safety Supervisor
Joseph.Kingston@ct.gov

Mike Kellett, Fire and Life Safety Specialist
Michael.Kellett@ct.gov

Chuck Kiessling, Fire and Life Safety Specialist
Chuck.Kiessling@ct.gov

(860) 713-5750

The End

