

NEW YORK
STATE OF OPPORTUNITY.

**Building Standards
and Codes**

Fire Protection & Fire Safety in Health Care

A Division of New York Department of State

March 6, 2024

1


March 6, 2024 2

Course Information

This course has been approved by the Department of State for In-Service Training credit as follows:

- 2 hours, Topic 1 – 1 hour, Topic 2 - 1 hour

Course number: 49-6962


**Building Standards
and Codes**

A Division of New York Department of State

2

FIRE PROTECTION AND FIRE SAFETY IN HEALTH CARE

How to maintain it,
troubles you may encounter
and why it should be maintained!

William Timmons



3

Introduction
William Timmons

- Town of Gates
 - Fire Marshal and Deputy Fire Marshal
 - 1992-2011
- Ridge Road Fire District
 - Firefighter-Battalion Chief
 - 1988-2014
- Life Safety Specialist
 - Rochester Regional Health
 - 2014-2020
 - Highland Hospital
 - 2020-present

4

Course Outline

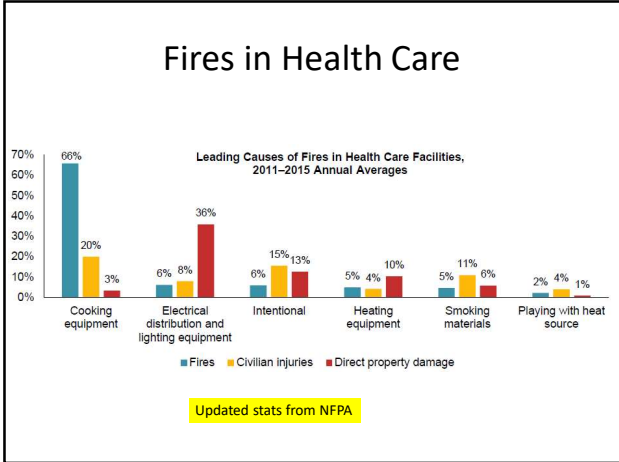
- Health care occupancies
- Fire alarms
- Water based fire protection
- Fire extinguishers
- Fixed fire protection
- Fire walls Fire doors Fire shutters
- Fire stopping
- Smoke compartments
- HVAC duct detection
- Fire service elevators
- Fire drills
- Fire safety plans
- Defend in place

5

Fires in Health Care

- NFPA data
- Recent incidents
- WILLIAMSPORT, Pa. (AP) — July 2017

6



7

- ### Fire Official Building Official Role
- Follow established codes
 - Ensure proper construction, alteration, renovation
 - Educate admin, facilities, safety
 - By following codes/standards
 - Prevention and mitigation
 - Assist in preparation for other oversight agencies

8

Fire Official Chapter 4 FCNY






FCNY

403 404

405 406

9

Health Care Occupancies

- I-2
 - Hospital and nursing homes
- Ambulatory Health Care
 - Immediate care
- Doctors Office

10

Health Care Occupancies

- Level of care
- Length of stay
- Capabilities of the patients/resident/elders
 - Ambulatory, non-ambulatory, self preservation
- Age and number of patients/resident/elders

11

Group I-2

308.3 Institutional Group I-2.
 Institutional Group I-2 occupancy shall include buildings and structures used for *medical care* on a 24-hour basis for more than five persons who are *incapable of self-preservation*. This group shall include, but not be limited to, the following:

- Foster care facilities*
- Detoxification facilities*
- Hospitals*
- Nursing homes*
- Psychiatric hospitals*

308.3.1 Occupancy conditions.
 Buildings of Group I-2 shall be classified as one of the occupancy conditions specified in Section 308.3.1.1 or 308.3.1.2.

308.3.1.1 Condition 1.
 This occupancy condition shall include facilities that provide nursing and medical care but do not provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to nursing homes and foster care facilities.

308.3.1.2 Condition 2.
 This occupancy condition shall include facilities that provide nursing and medical care and could provide emergency care, surgery, obstetrics or in-patient stabilization units for psychiatric or detoxification, including but not limited to hospitals.

12

**SECTION 304
BUSINESS GROUP B**

304.1 Business Group B.
Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

- Airport traffic control towers
- Ambulatory care facilities ←
- Animal hospitals, kennels and pounds
- Banks
- Barber and beauty shops
- Car wash
- Civic administration
- Clinic, outpatient
- Dry cleaning and laundries: pick-up and delivery stations and self-service
- Educational occupancies for students above the 12th grade
- Electronic data processing
- Food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m²) in area.
- Laboratories: testing and research
- Motor vehicle showrooms
- Post offices
- Print shops
- Professional services (architects, attorneys, dentists, physicians, engineers, etc.) ←
- Radio and television stations
- Telephone exchanges
- Training and skill development not in a school or academic program (this shall include, but not be limited to, tutoring centers, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

13

Ambulatory Care

- Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered incapable of self-preservation by the services provided.

AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to persons who are rendered incapable of self-preservation by the services provided.

14

Fire Protection and Building Features

15

Fire Alarm Systems

- Fire alarm systems crucial for occupant safety
- Requirements dependant on occupancy type
 - Hospital will be different than doctors office
 - Look for ambulatory care facility to be different

16

Fire Alarm Systems Why?

- Smoke detectors
 - Early warning
- Heat detectors
 - Areas not compatible for smoke detection
- Water flow alarms
 - Monitor sprinkler system
- Pull Stations
 - Alert employees, visitors, patients
- Horns/Strobes/Speakers

17

Fire Alarm Systems Why?

- Duct detectors
 - Shut down HVAC equipment
- Supervisory alarms
 - Monitor equipment
- Trouble alarms
 - Warning of possible equipment failure

18

Fire Alarm Systems
Code Section
SECTION 907
FIRE ALARM AND DETECTION SYSTEMS

- Reference to NFPA 72
 - Table 901.6.1
 - 907.8

19

Fire Alarm Systems
Compliance Concerns

[F] 907.4.1 Protection of fire alarm control unit. In areas that are not continuously occupied, a single smoke detector shall be provided at the location of each fire alarm control unit, notification appliance circuit power extenders, and supervising station transmitting equipment.

Exception: Where ambient conditions prohibit installation of a smoke detector, a *heat detector* shall be permitted.

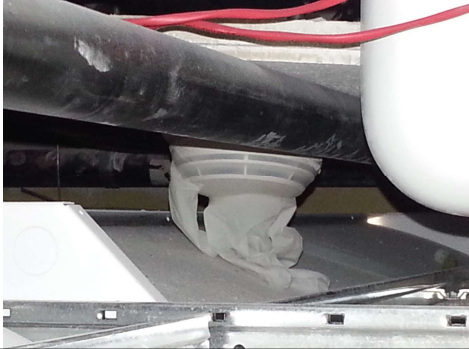
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Fire Alarm Systems
Compliance Concerns

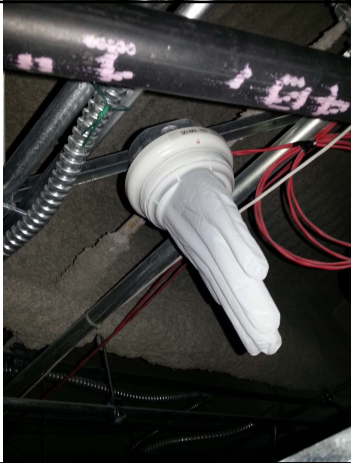
- Ensure all devices are tested
 - Check summary page
 - Check back of report for deficiencies
- Proper documentation
 - Maintained
- Sensitivity testing – FCNY 907.8.3

21

Fire Alarm Systems Compliance Concerns



22



23

Water Based Fire Protection

- Wet fire sprinkler systems
- Dry fire sprinkler systems
- Fire pumps
- Standpipes

24

Water Based Fire Protection
Why?

- Automatic fire suppression
 - Persons not able to care for themselves
 - Employees care for the patients
- Shelter in place
 - No protection, no shelter in place
- Property conservation
 - Continuity of operations

25

Water Based Fire Protection
Code Section?

- Chapter 9 FCNY
 - Reference to NFPA 72
 - Table 901.6.1
 - Standard for the Inspection, Testing and Maintenance of Water-based Fire Protection Systems
 - NFPA 25 – 2017

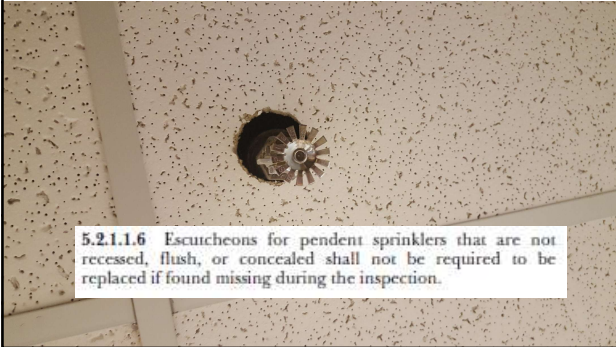
26

Water Based Fire Protection
Frequent Code Citations

- Quarterly tests
- Dusty sprinkler heads (loaded)
- 18" storage FCNY 315.3.1

27

Water Based Fire Protection Frequent Code Citations



28

Fire Extinguishers

- Fire suppression or **Door Stops**
- Often ignored
- FD response where a fire extinguisher was used
- Discharged one found during an inspection

29

Fire Extinguishers

Why?

- Allow for the rescue of trapped occupants
- Suppress a small fire without sprinkler
- Minimize smoke
- Prevent property damage

30

Fire Extinguishers
Code Section

- Standard for Portable Fire Extinguishers
 - NFPA 10 – 2018
 - FCNY 906
 - Table 901.6.1

31

Fire Extinguishers
Code Section

- Placement
 - 75' travel distance
 - Class K exception 30'
- Easiest may be ABC
 - Training , maintenance, inspection
 - Train in one or two types

32

Fire Extinguishers
Code Section

- Maintenance and Inspection
- Maintenance
 - Annual, trained
- Inspection
 - Monthly, visual, date/sign back of card

33

Fixed Fire Protection

- Computer rooms
 - Data room and UPS rooms
- Kitchens
- Café, grill
- Nursing homes – feel like home
 - New code section

34

Fixed Fire Protection

Why?

- Prevent fire spread
- Protection of
 - Property
 - Equipment
 - Records
 - Business continuity

35

Fixed Fire Protection

Code Section

- Computer rooms
 - Data room and UPS rooms
- What type of system
 - Carbon dioxide NFPA 12
 - Halon 1301 NFPA 12A
 - Table 901.6.1 FCNY

36

Fixed Fire Protection
Code Section

- Kitchens
- Café, grill
 - Dry Chemical NFPA 17
 - Wet Chemical NFPA 17A
 - FCNY 901.6.1

37

Fixed Fire Protection
Code Section

- Nursing homes
 - feel like home
 - New code section
 - 904.13
- Concept
- Application



38

Fixed Fire Protection
Concerns

- Connection to main fire alarm panel
- Testing and inspection
- Maintenance of system
- Kitchen/café cleaning
- Competency of the vendors

39

Fire Walls, Doors, Shutters



40

Fire Walls, Doors, Shutters

Why?

- Prevent the spread smoke, heat, fire
- Confinement
- Converts the building to smaller compartments

41

Fire Walls Code Section

- Chapter 7 FCNY
 - 703.1
 - Visual inspection
 - Maintain integrity

42

Fire Doors Code Section

- FCNY 704.2 opening protectives
- Standard for Fire Doors and Other Opening Protectives
 - NFPA 80 - 2016

43

Fire Doors Annual Inspection

- NFPA 80 – 2016
 - Annual fire door inspection
 - Inspection includes
 - Latches
 - Smoke seals
 - Closures
 - Hold open devices
 - Holes in door or frame
 - Label(s)

44

Fire Labels for Frames



45

Fire Exit/Panic Hardware



46

Fire Exit/Panic Hardware



47

Hold Open Devices Manual Type **NOT APPROVED**



48



49

Fire Shutters
Code Section

- Fire shutter testing
 - Door shall fall between 6” and 24” per second
 - 10’ door 20 seconds longest
 - 10’ door 5 seconds
 - Two tests
 - One to ensure door works
 - One to ensure door is reset properly

50

Smoke Compartments
Why?

- Prevent smoke spread
- Maintain corridors
 - Occupant evac
 - Firefighters and equipment
- Assist in maintaining critical functions
 - Protect the incapable of self preservation
- Allows defend in place

51

**Smoke Compartments
Code Section**

- FCNY 701.3
 - Doors and openings
 - NFPA 105

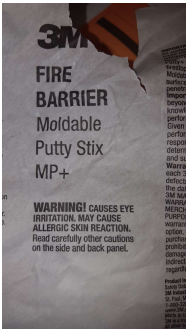
52

**Smoke Compartments
Thoughts**

- Smoke compartments
 - Maximum 22,500 sq ft
 - Need at least two on all floors
 - One compartment needs to be able to have the occupant load for both compartments
 - Travel distance to the next compartment

53

Fire Stopping



54

Fire Stopping
Why?

- Prevent the passage of fire
- Provide an effective toxic gas and smoke barrier
- Retard the transmission of heat
- Maintains fire walls and smoke partitions


55

Fire Stopping
Code Section

- FCNY 703.1
 - Shall be inspected by owner
 - Maintained
 - Records kept

56

Fire Stopping
Concerns



57

HVAC Duct Detection

- Mounted in HVAC equipment
 - Stop fans
 - Close dampers
 - Send an alarm



58

HVAC Duct Detection

Why?

- HVAC prime method of smoke spread
 - Contain smoke
 - Reduce the spread of smoke

59

HVAC Duct Detection

Code Section

- International Mechanical Code
- NFPA 72
 - Need to be tested annually
 - May be difficult to test due to location

60

HVAC Duct Detection
Discussion

- Duct detector? Fire alarm or supervisory?
 - AHJ, what do you require?
 - Design professional?

61

Fire Service Elevator

- Controlled by the fire department
 - Occupant evacuation
 - Firefighter and equipment transport

62

Fire Service Elevator
Why?

- Phase One
 - Control
 - All cars return
- Phase Two
 - Move to desired floor without interruption
 - Firefighters, equipment, evacuation
 - Hold car to facilitate rapid transport

63

Fire Service Elevator Code Section

- FCNY Section 606
 - Check for keys
 - Monthly testing

64

Phase One



65

Phase Two



66

Building Fire Features Completed
Now Let's Talk About
FCNY Chapter 4

67

Fire Drills Health Care

- Required in the FCNY
 - Business occupancy
 - Ambulatory care
 - I-2 hospital, long term care (nursing home)

- AHJ? Have you observed one?

68

Business Occupancy Fire Drills

- Fire drills FCNY TABLE 405.2
 - Once per year
 - Footnote
 - (b) emergency evacuation drills are required in group B buildings having an occupant load of more than 500 persons or more than 100 persons above or below the lowest level of exit discharge

69

Ambulatory Care Fire Drills

- Emergency Evac Drills
 - 403.3 section for ambulatory care
 - Sends you to section 405
 - 405 quarterly on each shift

70

I-2 / Nursing Home / LTC Fire Drills

- Fire drills FCNY TABLE 405.2
 - Once per shift per quarter

71

Business Occupancy Fire Safety Plan

- FCNY 403.4
 - Approved fire safety and evac plan for buildings having an occupant load of more than 500 persons or more than 100 persons above or below the lowest level of exit discharge

72

Ambulatory Care Fire Safety Plan

403.3 Ambulatory care facilities.

Ambulatory care facilities shall comply with the requirements of Sections 403.3.1 through 403.3.3 as well as 401 and 404 through 406.

403.3.1 Fire evacuation plan.

The fire safety and evacuation plan required by Section 404 shall include a description of special staff actions. This shall include procedures for stabilizing patients in a defend-in-place response, staged evacuation, or full evacuation in conjunction with the entire building if part of a multitenant facility.

403.3.2 Fire safety plan.

A copy of the plan shall be maintained at the facility at all times. The plan shall include all of the following in addition to the requirements of Section 404:

1. Locations of patients who are rendered incapable of self-preservation.
2. Maximum number of patients rendered incapable of self-preservation.
3. Area and extent of each ambulatory care facility.
4. Location of adjacent smoke compartments or refuge areas, where required.
5. Path of travel to adjacent smoke compartments.
6. Location of any special locking, delayed egress or access control arrangements.

403.3.3 Staff training.

Employees shall be periodically instructed and kept informed of their duties and responsibilities under the plan. Records of instruction shall be maintained. Such instruction shall be reviewed by the staff not less than every two months. A copy of the plan shall be readily available at all times within the facility.

73

I-2 / Nursing Home / LTC Fire Safety Plan

- 403.8.2 Group I-2 occupancies
 - Group I-2 occupancies shall comply with Sections 403.8.2.1 through 403.8.2.3 as well as 401 and 404 through 406

74

AHJ and the Fire Plan

- Fire drills
- Fire safety plan
- Fire evacuation plan

75

Defend in Place

76

Questions

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77
