

Top CMS Citations of 2023

Presented By Heather Lauzon Werner Lauzon Life Safety Consulting, LLC



WHAT IS A K-TAG

Definition

The K-tags address both LSC (Life Safety Code) and HCFC (Health Care Facilities Code) requirements pertaining to the physical environment.

Why Are Tags Important?

- Based on enacted law
 - Code of Federal Regulations
 - Wisconsin Administrative Code

Where To Find Information

K-tags are defined in CMS 2786R Booklet

- 123 K Tags
- https://www.cms.gov/Medicare/CMS-Forms/CMS-Forms/downloads/cms2786R.pdf

ID	
	PART I – NFPA 101 LSC REQUIREMENTS (Items in italics relate to the FSES)
	SECTION 1 - GENERAL REQUIREMENTS
K100	General Requirements – Other
	List in the REMARKS section any LSC Section 18.1 and 19.1 General Requirements that are not addressed by the provided K-tags, but are deficient. This information, along with the applicable Life Safety Code or NFPA standard citation, should be included on Form CMS-2567.
K111	Building Rehabilitation
	Repair, Renovation, Modification, or Reconstruction
	Any building undergoing repair, renovation, modification, or reconstruction complies with both of the following:
	Requirements of Chapter 18 and 19.
	Requirements of the applicable Sections 43.3, 43.4, 43.5, and 43.6.
	18.1.1.4.3, 19.1.1.4.3, 43.1.2.1
	Change of Use or Change of Occupancy
	Any building undergoing change of use or change of occupancy classification complies with the requirements of Section 43.7, unless permitted by 18.1.1.4.2 or 19.1.1.4.2.
	18.1.1.4.2 (4.6.7 and 4.6.11), 19.1.1.4.2 (4.6.7 and 4.6.11), 43.1.2.2 (43.7
	Additions
	Any building undergoing an addition shall comply with the requirements of Section 43.8. If the building has a common wall with a nonconforming building, the common wall is a fire barrier having at least a two hour fire resistance rating constructed of materials as required for the addition.
	Communicating openings occur only in corridors and are protected by approved self-closing fire doors with at least a 1-1/2 hour fire resistance rating. Additions comply with the requirements of Section 43.8.
	18.1.1.4.1 (4.6.7 and 4.6.11), 18.1.1.4.1.1 (8.3), 18.1.1.4.1.2, 18.1.1.4.1.3 19.1.1.4.1 (4.6.7 and 4.6.11), 19.1.1.4.1.1 (8.3), 19.1.1.4.1.2, 19.1.1.4.1.3 43.1.2.3(43.8)



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DOCUMENTATION REQUIREMENTS

- > <u>WHO</u> did the inspection (Name, or Initials if In-House; contact info)
- WHEN inspection was performed (month, date & year; show required frequency)
- WHAT was inspected. If more than one, must list EACH separately (except for sprinklers)
- HOW inspection is done: code ref, criteria for "pass"; readings
- RESULTS Clearly show the result
- FIXED All deficiencies corrected, with doc & re-test





CURRENT TOP CITATIONS





Top K Tags Q1& Q2 of 2023

- Sprinkler System Testing & Maintenance
- 2. Generator Testing & Maintenance
 - Hazardous Area Enclosures
- 4. Fire Alarm System Testing & Maintenance
- 5. Fire Drills

1.

3.

6.

7.

- Corridor Doors
- **Cooking Facilities & HVAC**
- 8. Electrical Equipment Power Cords and Extension Cords
- 9. Smoke Barrier Walls
- 10. Egress



K353 SPRINKLER SYSTEM-MAINTENANCE AND TESTING

• 18% of all K-Tags issued in WI and Nationwide









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K353 SPRINKLER SYSTEM-MAINTENANCE AND TESTING

Inspections

- Heads
- Piping
- Spare Sprinklers
- •D, W, M, Q, SA, A

Testing

- Quarterly
- Semi-annual
- Annual

Maintenance

- Per manufacturer
- ■3 year
- ■5 year
- ■10, 20, 50 year

9.7.5, 9.7.7, 9.7.8, and NFPA 25

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NFPA 25 Required Inspections

Inspection, Testing & Maintenance per NFPA 25-2011

System	Frequency	
Sprinkler System • Wet	1. Daily 2. Weekly	
 Dry Preaction Antifreeze Deluge 	 3. Monthly 4. Quarterly 5. Semi-Annual 6. Annual 7. 3-Year 8. 5-Year 9. 10.20, 50 Year 	





1. The IF's

IF you have it, it must be tested

• Additional Testing Frequencies

Daily, Weekly, Quarterly, Annual:

- Dry, Preaction & Deluge Systems
- Pressure Reducing Valve

Backflow Preventer



Quarterly:

- Low Air Pressure Alarm
- Supervisory Switches for Water Supply Equipment
- Heat Tape
- Quick-opening Device
- Water Flow Alarm Bell



NFPA 25 - 2011, 13.2

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2. Monthly

Valves & Gauges

All Valve Inspections

- Normal Position
- Tamper switch
- Accessible
- ➤ Leak-free
- Identification
- Damage free
- Sign of system it controls
- Wrench (in needed) nearby

Monthly Gauge Inspection

All Gauges

- Condition
- Air pressure
- > Water pressure

Shut valves are the most common cause of sprinkler system failure.





NFPA 25 - 2011, 13.3.2.2, 13.4.1.1

3. Quarterly

<u>Hydraulic Nameplate</u>

Design Nameplate must be posted on each riser if system was hydraulically designed (most are)

Only item required for both Quarterly and Annual Inspections

Fire Department Connection



HYDRAULIC-SYSTEM THIS BUILDING IS PROTECTED BY A HYDRAULICALLY DESIGNED AUTOMATIC SPRINKLER SYSTEM			
Location			
No. of Sprinklers			
Basis of Design			
1. Density	GPM/SQ. FT		
2. Designed Area of Discharge	5Q. FT		
System Demand			
1. GPM Discharge	OPM		
2. Residual Pressure at the Base of the Riser	PSI		
3. Hose Stream Allowance			
Occupancy Classification			
Commodity Classification			
Maximum Storage Height			
Date of Installation			
Installed By:			



4. Semi-Annual





Pressure Switch

<u>Waterflow Devices</u>

Vane-type and pressure switch-type waterflow devices shall be tested semiannually for compliance with both NFPA 25 and 72



Flow Switch



NFPA 25 - 2011, 13.2.6.2

Semi-Annual

Tamper Switches

13.3.3.5.2 A distinctive signal shall indicate movement from the valve's normal position during either the <u>first</u> <u>two revolutions</u> of a hand wheel or when the stem of the valve has <u>moved one-fifth of the distance</u> from its normal position.

Record number of revolutions





NFPA 25 - 2011, 13.3.3.5

5. Annual Inspection & Testing

Annual Inspection is not a substitute for a Quarterly or Semi-Annual.

Must have 4 Quarterlies, 2
 Semi-Annuals and an Annual

If done together, form must include <u>Separate Checkpoints</u> for each





6. Annual Visual Inspections

#1 Cause of Citations is Poorly Done Visual Inspections







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Sprinkler Head Condition

- 1. Foreign material Lint, Dust, Spider Webs, etc.
- 2. Leakage
- 3. Corrosion
- 4. Paint
- 5. Damage
- 6. Correct orientation
- 7. Bulb Fluid Loss







NFPA 25 - 2011, 5.2.1.1



<u>Sprinkler Obstructions</u>

 18" clearance is general rule (but more complicated)
 Follow your policy





- Irregular-shaped rooms with alcoves, columns, etc.
- Open ceilings with exposed beams & soffits
- > Anything projecting from ceiling (lights, signs, soffits, etc.)
- Shelving in center of room







Visible Pipes & Hangers

Inspect pipe & fittings from the floor for leakage, corrosion, damage, external loads

Sprinkler piping shall not be subjected to external loads by materials either resting on the pipe or hung from the pipe







NFPA 25 - 2011, 5.2.2 &.3

K918 ELECTRICAL SYSTEMS-ESSENTIAL ELECTRICAL SYSTEM MAINTENANCE AND TESTING

- 13% of all K-Tags issued in WI
- 14% Nationwide

Generator Inspections, Testing, & Maintenance

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#2



LAUZON LIFE

K918 ELECTRICAL SYSTEMS-ESSENTIAL ELECTRICAL SYSTEM MAINTENANCE AND TESTING

- Generators need to receive transfer of power within 10 seconds
- Complete all inspections & tests - Weekly, Monthly, others
- Circuit breakers
- Transfer switches
- Panels marked
- Record all forms of maintnance

K918 Electrical Systems – Essential Electric System Maintenance and Testing

The generator or other alternate power source and associated equipment is capable of supplying service within 10 seconds. If the 10-second criterion is not met during the monthly test, a process shall be provided to annually confirm this capability for the life safety and critical branches. Maintenance and testing of the generator and transfer switches are performed in accordance with NFPA 110.

Generator sets are inspected weekly, exercised under load 30 minutes 12 times a year in 20-40 day intervals, and exercised once every 36 months for 4 continuous hours. Scheduled test under load conditions include a complete simulated cold start and automatic or manual transfer of all EES loads, and are conducted by competent personnel. Maintenance and testing of stored energy power sources (Type 3 EES) are in accordance with NFPA 111. Main and feeder circuit breakers are inspected annually, and a program for periodically exercising the components is established according to manufacturer requirements. Written records of maintenance and testing are maintained and readily available. EES electrical panels and circuits are marked, readily identifiable, and separate from normal power circuits. Minimizing the possibility of damage of the emergency power source is a design consideration for new installations.

6.4.4, 6.5.4, 6.6.4 (NFPA 99), NFPA 110, NFPA 111, 700.10 (NFPA 70)



1. Weekly Inspections

Malfunction of the battery/starting/charging system is the most common reason the generator fails to come on-line. Lack of proper maintenance is usually the reason.

Overall Generator Fuel Lubrication Cooling Exhaust Electrical Battery 8.3.7 Storage batteries, including <u>electrolyte levels</u> or <u>battery voltage</u>, used in connection with systems shall be inspected weekly and maintained in full compliance with manufacturer's specifications.





2. Monthly

Batteries

- 8.3.7.1 Maintenance of lead-acid batteries shall include➢ Monthly testing
- Recording electrolyte specific gravity or battery <u>conductance</u> testing

Maintain per manufacturer's specifications.









Transfer Switches

- The monthly test of a transfer switch shall consist of
- Electrically operating the transfer switch from the standard position to the alternate position
- > Then a return to the standard position.

A different transfer switch should be used
each month to initiate the generator test
➢ Document it



Maintenance performed according to manufacturer's recommendations. If there are none, follow the basic guidelines in NFPA 110 - 2010

<u>Generator Exercise</u>

Diesel Generators

- ➢ 30 Minute, Under Load
- Load measured by:
 - 30% of Nameplate kW rating, or
 - Min exhaust gas temperature (per manufacturer)



Natural Gas Generators

 Under available load for 30 min
 Or until water temperature & oil pressure have stabilized





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3. Annual Load Bank

Applies to diesel generators only

8.4.2.3 If you don't meet 30%
monthly load you must do both:
➢ Run monthly with available load and

Annual 90 min load bank 50%-30 min 75%-60 min





NFPA 110 - 2010

AVTRONS

2 10 5 5×5×5×5×5×5 1600-726-8251

4. Annual Inspection & Testing

<u>Circuit Breakers</u>

NFPA 110 - 2010, 8.4.7

• <u>Main and feed breakers</u> between the EPS and the transfer switch load terminals, shall be <u>exercised</u> <u>annually</u> with the EPS in the "off" position

NFPA 99 - 2012, 6.4.4.1.2.1

 Main and feed breakers shall be inspected annually and a program for periodically exercising the components shall be established according to manufacturer's recommendations.



• May do infrared testing, high-current testing, or other means of inspection.



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NFPA 99 - 2012, 6.4.4.1.2.1

<u>Fuel</u>

8.3.8 - <u>Annual Fuel Quality Test</u>

Test method per ASTM standards









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5. Semi-Annual & 2 Year Inspection & Testing

Circuit Breakers Over 600 Volts

Usage shall be exercised every 6 months
 Tested under simulated overload conditions every 2 years





5. Generator 3 Year Testing

<u>Generator Endurance Test</u>

Run for 4 hoursApplies to Level 1 generators

A full facility power outage is not required for this test but is recommended where a total facility power outage has not occurred within the last 36 months.





NFPA 110 - 2010, 8.4.9-8.4.9.7

K321 HAZARDOUS AREAS-ENCLOSURE

- 12% of all K-Tags issued in WI
- 10% Nationwide











ID

1 2012 NEW

Hazardous areas are protected in accordance with 18.3.2.1. The areas shall be enclosed with a 1-hour fire-rated barrier, with a ³/₄ hour fire-rated door without windows (in accordance with 8.7.1.1). Doors shall be self-closing or automatic-closing in accordance with 7.2.1.8. Hazardous areas are protected by a sprinkler system in accordance with 9.7, 18.3.2.1, and 8.4.

Describe the floor and zone locations of hazardous areas that are deficient in REMARKS.

18.3.2.1, 7.2.1.8, 8.4, 8.7, 9.7

Area	Automatic Sprinkler	Separation	N/A
a. Boiler and Fuel-Fired Heater Rooms			
b. Laundries (larger than 100 sq. ft.)			
c. Repair, Maintenance, and Paint Shops			
d. Soiled Linen Rooms (exceeding 64 gal.)			
e. Trash Collection Rooms (exceeding 64 gal.)			
f. Combustible Storage Rooms/Spaces (over 50 and less than 100 sq. ft.)			
g. Combustible Storage Rooms/Spaces (over 100 sq. ft.)			
h. Laboratories (if classified as Severe Hazard - see K322)			

2012 EXISTING

Hazardous areas are protected by a fire barrier having 1-hour fire resistance rating (with ³/₄ hour fire rated doors) or an automatic fire extinguishing system in accordance with 8.7.1 or 19.3.5.9. When the approved automatic fire extinguishing system option is used, the areas shall be separated from other spaces by smoke resisting partitions and doors in accordance with 8.4. Doors shall be self-closing or automatic-closing and permitted to have nonrated or field-applied protective plates that do not exceed 48 inches from the bottom of the door.

Describe the floor and zone locations of hazardous areas that are deficient in REMARKS.

19.3.2.1, 19.3.5.9

Area	Automatic Sprinkler	Separation	N/A
a. Boiler and Fuel-Fired Heater Rooms			
b. Laundries (larger than 100 sq. ft.)			
c. Repair, Maintenance, and Paint Shops			
d. Soiled Linen Rooms (exceeding 64 gal.)			
e. Trash Collection Rooms (exceeding 64 gal.)	-	-	
f. Combustible Storage Rooms/Spaces (over 50 sq. ft.)			
g. Laboratories (if classified as Severe Hazard - see K322)			

K321 HAZARDOUS AREAS - ENCLOSURE

New

- Ihr walls
- ¾ hr door with closer (no windows)
- Sprinklered

Existing

- Ihr walls with ³/₄ hr door
- Or sprinklered and smoke tight
- Doors need closers



1. Wall & Door Requirements

1-Hr Rated Enclosure

1-Hr Rated Enclosure or Sprinklered & Smoke Tight

- 1. Boilers & Fuel-Fired Heater Rooms
- 2. Central Laundries greater than 100 SF
- 3. Paint Shops (with oil-based paints; < NFPA 30 limit)
- 4. Maintenance Shops
- 5. Soiled Linen (greater than 64 gal)
- 6. Trash (greater than 64 gal)
- 7. Laboratories (Severe Hazard)
- 8. New Storage rooms over 100 SF

- 1. Laboratories (Normal Hazard)
- 2. Storage Rooms New
 - 50-100 SF
 - Existing
 - Over 50 SF





ROOM • Sprinklers

Smoke Tight Requirements

<u>DOOR</u> •Any door •Rating NOT required



WALL Full-Height or up to ceiling No holes Non-Rated Fire Stop NOT required

<u>CLOSER</u>

Closer (without hold open arm)
Mag Hold-Open & Smoke Detector (if desired to be held open)



1-Hr Rated Enclosure Requirements

•45 minute rated door



LISTED 45 MINUTE HOLLOW METAL DOOR CERTIFIED TO: NFPA252 UL10c CAN/ULC S104 MINIMUM LATCH BOLT THROW 1/2" - SINGLE SWING 3/4" - PAIRS TEMP. RISE: 30 MIN > 650F WH-SMOKE & DRAFT CONTROL RATING REQUIRE A LISTED CAT. H GASKET FIRE DOOR TO BE EQUIPPED WITH FIRE EXIT HARDWARE SEE INSTALLATION INSTRUCTIONS



<u>CLOSER</u> •Closer (without hold open arm) •Mag Hold-Open & Smoke Detector (if desired to be held open)





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1-Hr Rated Enclosure Requirements

WALL

- Vertical ContinuityFull-Height or up to Rated Ceiling
- Horizontal Continuity 8.3.1.2 – Must fully encircle space OR outside wall to outside wall

<u>Proper thickness</u> of drywall, block, etc.

1-hr Rating

- Two ½" layers on both sides
- One 5/8" on both sides
- 3" Clay Tile + 5/8" both sides
- 4" Block
- 2-3/4" Concrete





WALL

Seam Tape, Corner Bead & Screw Heads

- Must have <u>two layers</u> of joint compound on tape seams and screws (unless listing document authorizes otherwise).
- Corner bead must be mudded

Should not be able to see tape or screws




Firestopping

<u>Top</u> of Wall and <u>Side</u> Wall Joints

- Joints between dissimilar materials must be properly fire stopped
- Joint Compound is not a substitute for fire stop









No <u>Holes</u> in Rated Walls

<u>Holes</u> are Never acceptable – Must be properly sealed

Sealed <u>Penetrations</u>

• Properly Fire Stop all penetrations on rated walls









K345 FIRE ALARM SYSTEM TESTING & MAINTENANCE

• 10% of all K-Tags issued in WI and Nationwide







#2



K345 FIRE ALARM SYSTEM TESTING & MAINTENANCE

Inspections

- NFPA 72 2010, Table 14.3.1
- Monthly, Quarterly, <u>Semi-Annual</u>, Annual
- NFPA 70 2008

K345

Testing

- NFPA 72 2010, Table 14.4.5
- Weekly, Monthly, Quarterly, <u>Semi-Annual</u>, Annual

Maintenance

Per manufacturer

Fire Alarm System – Testing and Maintenance
A fire alarm system is tested and maintained in accordance with an approved program complying with the requirements of NFPA 70, National Electric Code, and NFPA 72, National Fire Alarm and Signaling Code.
Records of system acceptance, maintenance and testing are readily available.
9.7.5, 9.7.7, 9.7.8, and NFPA 25

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1. Visual Inspections

1. <u>Physical condition</u> - unusually loud noise, unusually high amount of heat, appearance of physical damage, such as corrosion, scorch marks, or dents





- 2. Proper installation and location
- 3. Function will not be inhibited by a buildup of <u>dust</u> and dirt
- 4. Mechanical or water <u>damage</u>





- 5. Changes in <u>building conditions</u> that impact the effectiveness of the devices
- 6. Indicator lights are operational
- 7. Equipment is in its "normal" <u>operating</u> <u>status</u>

8. <u>Obstructions</u> in front of manual fire alarm boxes and remote annunciators (zero-tolerance)









Monthly Visual

- Lead-acid BatteriesPrimary (dry cell) Batteries
- Batteries shall be inspected for corrosion or leakage.
- Tightness of connections shall be checked and ensured.
- If necessary, battery terminals or connections shall be cleaned and coated.
- Electrolyte level in lead-acid batteries shall be visually inspected.







Quarterly Visual

- Initiating Devices
 - Radiant Energy Fire Detectors
 - Waterflow Devices
- Supervisory Signal-Initiating Device Signals a need for action
 - Examples
 - Valve supervisory switch
 - Water level indicator
 - Low air pressure switch







- Nickel-Cadmium Batteries
- Sealed Lead-Acid Batteries
- Transient Suppressors
- Control Unit Trouble Signals
- Voice/Alarm Communication Equipment
- Remote Annunciator
- Supervising Station Transmitters
- Supervising Station Receivers











- Exit Marking Audible
 Notification Appliances
 Fire Extinguisher
 - Electronic Monitoring System

- Mass Notification System
- CO Detection System
- Written Alarm Procedures











- Supervised Alarm Notification Appliances
- Interface Equipment















Initiating Devices

- Air Sampling
- Duct Detectors
- Electromechanical Releasing Devices
- Fire Extinguishing System or Suppression System Switches
- Manual Fire Alarm Boxes
- Heat Detectors
- Smoke Detectors









2. Testing

Testing <u>Frequency</u> (Table 14.4.5)

Testing <u>Methods</u> (Table 14.4.2.2)







Weekly Testing

- Supervising Station Receivers
- Control Unit Trouble Signals
- Re-Transmission Testing





CO Detection System
 Hyperbaric Fire
 Detection Equipment



Weekly



 Smoke Alarms
 Smoke Alarms shall be <u>tested weekly</u>
 Replace at 10 years or sooner



- Batteries changed at least <u>semi-annually</u>, or, if the battery has a longer life, follow manufacturer's recommendations.
- Additional maintenance may be required such as cleaning on a regular basis
- Keep records of all maintenance, testing and battery changing and have such records available at the time of any inspection.





Monthly Testing

Dry Cell Battery Age Test

Quarterly Testing

- High or Low Air Pressure Switch
 - Signal must be received within 10 psi

Other Supervisory Indicating Devices

May be done with sprinkler inspections



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NFPA 72 - 2010, Table 14.4.2.2 & Table 14.4.5





Waterflow Devices



Semi-Annual Testing

Radiant Energy Fire Detectors
 Mass Notification System
 Valve Supervisory Switches

Batteries

- Nickel-Cadmium
 - Load Voltage Test
- Sealed Lead-Acid
 - Load Voltage Test
- Lead-Acid
 - Discharge test
 - Load Voltage Test
 - Specific Gravity



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NFPA 72 - 2010, Table 14.4.2.2 & Table 14.4.5



Annual Testing

Performed by contractor

- Document repairs of all failures
 - Close the loop







NFPA 72 - 2010, Table 14.4.2.2 & Table 14.4.5

3. Sensitivity Testing

Frequency:
 ➤ Test at installation
 ➤ Test <u>1 yr</u> after
 ➤ Test every 2 years

2. List each device, the acceptable range, and actual range tested





NFPA 72 - 2010, 14.4.5.3

K712 FIRE DRILLS

10% of all K-Tags issued in WI and Nationwide









K712 FIRE DRILLS

K712 Fire Drills

Fire drills include the transmission of a fire alarm signal and simulation of emergency fire conditions. Fire drills are held at expected and unexpected times under varying conditions, at least quarterly on each shift. The staff is familiar with procedures and is aware that drills are part of established routine. Where drills are conducted between 9:00 PM and 6:00 AM, a coded announcement may be used instead of audible alarms. 18.7.1.4 through 18.7.1.7

GOAL

Familiarize all staff with fire safety procedures by simulating an actual fire

REQUIREMENTS

- Once per shift per quarter (~12 times per year, *sometimes more)
- Held at varying times and locations
- Participation is required



1. Purposes of Fire Drills

<u>Test the Transmission of the Fire Alarm Signal to Monitoring Company</u>



NFPA 101 - 2012, 18/19.7.1.6

Familiarize Staff with Signals and Emergency Actions

Drills conducted between 9 pm and 6 am may use a coded announcement instead of audible alarms



Still Need to Operate Visuals & Transmit Alarm





NFPA 101 - 2012, 18/19.7.1.7

Specific Tag Requirements

- 1. 1/Shift/Quarter
- 2. Varied Days (max 2 within a day of each other)
- 3. Varied Times (max 2 within an hr of each other)
- 4. Varied Locations (none in same smoke compartment)
- 5. Staff/auto activate alarm
- 6. Include Transmission of Alarm
- 7. Include Back Up Call to FD or Monitoring
- 8. Documented staff participation
- 9. Documented evaluation of drill

The goal is to have <u>each</u> employee participate in a drill at least once each year





K363 CORRIDOR DOORS

8% of all K-Tags issued in WI
9% Nationwide





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K363 CORRIDOR DOORS

- Resist the passage of smoke
- Must positively self latch
- Close with push or pull



ID PREFIX K363

Corridor – Doors 2012 EXISTING

Doors protecting corridor openings in other than required enclosures of vertical openings, exits, or hazardous areas resist the passage of smoke and are made of 1% inch solid-bonded core wood or other material capable of resisting fire for at least 20 minutes. Doors in fully sprinklered smoke compartments are only required to resist the passage of smoke. Corridor doors and doors to rooms containing flammable or combustible materials have positive latching hardware. Roller latches are prohibited by CMS regulation. These requirements do not apply to auxiliary spaces that do not contain flammable or combustible material.

Powered doors complying with 7.2.1.9 are permissible if provided with a device capable of keeping the door closed when a force of 5lbf is applied, whether or not power is applied.

Clearance between bottom of door and floor covering is not exceeding 1 inch. There is no impediment to the closing of the doors. Hold open devices that release when the door is pushed or pulled are permitted. Nonrated protective plates of unlimited height are permitted. Dutch doors meeting 19.3.6.3.6 are permitted. Door frames shall be labeled and made of steel or other materials in compliance with 8.3, unless the smoke compartment is sprinklered. Fixed fire window assemblies are allowed per 8.3. In sprinklered compartments there are no restrictions in area or fire resistance of glass or frames in window assemblies.

19.3.6.3, 42 CFR Parts 403, 418, 460, 482, 483, and 485 Show in REMARKS details of doors such as fire protection ratings, automatics closing devices, etc.

2012 NEW

Doors protecting corridor openings shall be constructed to resist the passage of smoke. Corridor doors and doors to rooms containing flammable or combustible materials have self-latching and positive latching hardware. Roller latches are prohibited by CMS regulation. These requirements do not apply to auxiliary spaces that do not contain flammable or combustible material.

Powered doors complying with 7.2.1.9 are permissible if provided with a device capable of keeping the door closed when a force of 5lbf is applied, whether or not power is applied.

Clearance between bottom of door and floor covering is not exceeding 1 inch. There is no impediment to the closing of the doors. Hold open devices that release when the door is pushed or pulled are permitted. Nonrated protective plates of unlimited height are permitted. Dutch doors meeting 18.3.6.3.6 are permitted.

18.3.6.3, 42 CFR Parts 403, 418, 460, 482, 483, and 485 Show in REMARKS details of doors such as fire protection ratings, automatic closing devices, etc.



1. Door Construction

Sprinkled:

Resist the passage of smoke 18.3.6.3.1; 19.3.6.3.2(2)

- Frames door stops to resist the passage of smoke 18/19.3.6.3.1
- No transfer grills 18/19.3.6.4.1
- Windows No requirements 19.3.6.3.17

Not Sprinkled

- 1-3/4" thick solid core wood door
- or door that resists a fire for20 minutes 19.3.6.3.1
- Frames steel or rated 19.3.6.3.14
- No transfer grills 18/19.3.6.4.1
- Windows comply with NFPA 80 for 20 minute rated doors 19.3.6.3.16



Resist the Passage of Smoke

- New & Existing: ≥ 32" clear width
 Meeting edge must have rabbet/bevel or astragal (any edge gap okay)
 Inactive leaf must have auto flush bolt
- > Must latch









NFPA 101 - 2012, 18/19.2.3.7

Positively Self Latch



Inspect door self-closing & latching several times to make sure they operate repeatedly.



NFPA 101 - 2012, 18/19.3.6.3

Close with Push or Pull

Any <u>Hold-open</u> device used on a corridor door or rated door must <u>release</u> when door is pushed or pulled.



<u>Mag-Hold Opens</u> must comply with all NFPA 72 requirements, including a **nearby smoke detector**

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NFPA 101 - 2012, 18/19.3.6.3

LAUZON LIFE



K324 COOKING FACILITIES

9% of all K-Tags issued Nationwide





K521 HVAC• 9% of all K-Tags issued in WI



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K324 COOKING FACILITIES

All cooking shall be performed in <u>non-corridor</u> spaces



K324 Cooking Facilities

Cooking equipment is protected in accordance with NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, unless:

- residential cooking equipment (i.e., small appliances such as microwaves, hot plates, toasters) are used for food warming or limited cooking in accordance with 18.3.2.5.2, 19.3.2.5.2.
- cooking facilities open to the corridor in smoke compartments with 30 or fewer patients comply with the conditions under 18.3.2.5.3, 19.3.2.5.3, or
- cooking facilities in smoke compartments with 30 or fewer patients comply with conditions under 18.3.2.5.4, 19.3.2.5.4.

Cooking facilities protected according to NFPA 96 per 9.2.3 are not required to be enclosed as hazardous areas, but shall not be open to the corridor.

18.3.2.5.1 through 18.3.2.5.4, 19.3.2.5.1 through 19.3.2.5.5, 9.2.3, TIA 12-2

<u>Limited</u> Cooking may be performed in corridors if conditions are met



1. Cooking in the Corridor Conditions

<u>Arrangement</u>

- Used to prepare meals for less than <u>30</u> people
- One per smoke compartment
- Separated by a Smoke Barrier





<u>Equipment</u>

Solid fuel prohibitedDeep-fat fryer prohibited

NFPA 101 - 2012, 18/19.3.2.5.3, TIA 12-2



<u>Hood</u>

- ➢ Hood w/≥ 500 cfm
- Hood w/o exterior duct has charcoal filters
- Grease collecting & clean-out capability





<u>Smoke Detector</u>

 Dedicated device located 20'-25' from cooktop or range
 Minimum 2



NFPA 101 - 2012, 18/19.3.2.5.3

<u>Controls</u>

Control Switch

- Deactivates equipment
- Restricted access to switch

Switch is used whenever not under staff supervision

Timer➢ 2-hr timer to automatically turn off







NFPA 101 - 2012, 18/19.3.2.5.3

Suppression

- ➢ UL 300 system
- Manual release
- Interlocked fuel/power with system activation
- Equipment maintained per NFPA 96
- Portable extinguishers maintained per NFPA 96







NFPA 101 - 2012, 18/19.3.2.5.3




K521 HVAC

FGI Ventilation (ASHRAE 170) Applies to: ▶Patient care areas and related support areas

Hospitals, Nursing facilities, Outpatient facilities

New buildings, additions, alterations to existing buildings

K521	HVAC
	Heating, ventilation, and air conditioning shall comply with 9.2 and shall be installed in accordance with the manufacturer's specifications.
	18.5.2.1, 19.5.2.1, 9.2



ASHRAE 170 Table 7-1



>Monitor pressure relationships - documented

		TABLE 7-1	Design Parameters				
Function of Space	Pressure Relationship to Adjacent Areas (n)	Minimum Outdoor ach	Minimum Total ach	All Room Air Exhausted Directly to Outdoors (j)	Air Recirculated by Means of Room Units (a)	RH (k), %	Design Temperature (I), °F/°C
SURGERY AND CRITICAL CARE							
Classes B and C operating rooms, (m), (n), (o)	Positive	4	20	N/R	No	30-60	68-75/20-24
Operating/surgical cystoscopic rooms, (m), (n) (o)	Positive	4	20	N/R	No	30-60	68-75/20-24
Delivery room (Caesarean) (m), (n), (o)	Positive	4	20	N/R	No	30-60	68-75/20-24
Substerile service area	N/R	2	6	N/R	No	N/R	N/R
Recovery room	N/R	2	6	N/R	No	30-60	70-75/21-24
Critical and intensive care	Positive	2	6	N/R	No	30-60	70-75/21-24
Wound intensive care (burn unit)	Positive	2	6	N/R	No	40-60	70-75/21-24
Newborn intensive care	Positive	2	6	N/R	No	30-60	70-75/21-24
Treatment room (p)	N/R	2	6	N/R	N/R	30-60	70-75/21-24
Trauma room (crisis or shock) (c)	Positive	3	15	N/R	No	30-60	70-75/21-24
Medical/anesthesia gas storage (r)	Negative	N/R	8	Yes	N/R	N/R	N/R
Laser eye room	Positive	3	15	N/R	No	30-60	70-75/21-24
ER waiting rooms (q)	Negative	2	12	Yes	N/R	max 65	70-75/21-24
Triage	Negative	2 .	12	Yes	N/R	max 60	70-75/21-24



<u>Outdoor Air Intakes & Exhaust</u>

Intake Location

- > 25' from exhaust, vent, cooling towers
- > 6' above grade, 3' above roof

Exhaust for Specific Functions

- All, bronchoscopy, ED waiting, nuclear medicine lab, radiology waiting rooms, and chemical fume hoods:
 - Interior ductwork under negative pressure
 - Discharge 10' above roof, 10' horizontally from intakes, operable windows, etc.
 - Minimize recirculation into building





ASHRAE 170 – 2008, 6.2

Filters

FGI 2.1-8.2.5.2 Filter frames shall be durable and fit tightly within the ductwork.

All joints between filter segments and enclosing ductwork shall have <u>gaskets</u> <u>or seals</u> to provide a positive seal against air leakage.





K920 ELECTRICAL EQUIPMENT -POWER CORDS AND EXTENSION CORDS

- 7% of all K-Tags issued in WI
- 8% Nationwide









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K920 ELECTRICAL EQUIPMENT - POWER CORDS AND EXTENSION CORDS

K920

Extension cords are not a substitute for fixed wiring



Electrical Equipment – Power Cords and Extension Cords Power strips in a patient care vicinity are only used for components of movable patient-care-related electrical equipment (PCREE) assembles that have been assembled by qualified personnel and meet the conditions of 10.2.3.6. Power strips in the patient care vicinity may not be used for non-PCREE (e.g., personal electronics), except in long-term care resident rooms that do not use PCREE. Power strips for PCREE meet UL 1363A or UL 60601-1. Power strips for non-PCREE in the patient care rooms (outside of vicinity) meet UL 1363. In non-patient care rooms, power strips meet other UL standards. All power strips are used with general precautions. Extension cords are not used as a substitute for fixed wiring of a structure. Extension cords used temporarily are removed immediately upon completion of the purpose for which it was installed and meets the conditions of 10.2.4.

10.2.3.6 (NFPA 99), 10.2.4 (NFPA 99), 400-8 (NFPA 70), 590.3(D) (NFPA 70), TIA 12-5

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1. Power Strips

Used for components of a movable equipment assembly that is cartmounted:

- 1. The receptacles are permanently attached to the equipment assembly.
- 2. The sum of the ampacity of all appliances does not exceed 75 percent of the ampacity of the flexible cord supplying the outlets.
- 3. The ampacity of the flexible cord is in accordance with NFPA 70, National Electrical Code.
- 4. The electrical and mechanical integrity of the assembly is regularly verified and documented
- 5. Additional devices or nonmedical equipment cannot be connected after leakage currents have been verified as safe.



Patient Care Vicinity

- UL 1363A or UL 60601-1
- **Outside Patient Care Vicinity**
- UL 1363



NFPA 99 - 2012, 10.2.3.6

K372 SUBDIVISION OF BUILDING SPACES - SMOKE BARRIER CONSTRUCTION

- 7% of all K-Tags issued in WI
- 6% Nationwide







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K372 SUBDIVISION OF BUILDING SPACES -SMOKE BARRIER CONSTRUCTION

- If sprinkled and fully ducted, smoke dampers are not required
- Must have at least 2 smoke compartments on each floor

K372	Subdivision of Building Spaces – Smoke Barrier Construction						
	2012 EXISTING						
	Smoke barriers shall be constructed to a ½ hour fire resistance rating per 8.5. Smoke barriers shall be permitted to terminate at an atrium wall. Smoke dampers are not required in duct penetrations in fully ducted HVAC systems where an approved sprinkler system is installed for smoke compartments adjacent to the smoke barrier.						
	19.3.7.3, 8.6.7.1(1)						
	Describe any mechanical smoke control system in REMARKS.						
	2012 NEW						
	Smoke barriers shall be constructed to provide at least a 1-hour fire resistance rating and constructed in accordance with 8.5. Smoke barriers shall be permitted to terminate at an atrium wall. Smoke dampers are not required in duct penetrations of fully ducted HVAC systems.						
	18.3.7.3, 18.3.7.4, 18.3.7.5, 8.3						
	Describe any mechanical smoke control system in REMARKS.						



1. Wall Requirements

New LSC-2012

Existing LSC-2012

Min 1Hr Fire Resistance Rating

- Min ½ Hr Fire Resistance Rating
- Since 1967 LSC all new smoke barriers need a 1 hour assembly

Penetrations shall be protected with a fire stopping system or device

- 1 hr fire resistance rating
- Restricts the transfer of smoke



NFPA 101 - 2012, 18/19.3.7.1

<u>Continuity</u>

Must form a Continuous Wall

<u>1. Horizontally</u> from outside wall to outside wall or from smoke barrier to smoke barrier

<u>2. Vertically</u> from floor to deck above

• Through concealed spaces above ceiling





NFPA 101 – 2012, 8.5.2



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K211 MEANS OF EGRESS-GENERAL

• 6% of all K-Tags issued Nationwide

K222 EGRESS DOORS

7% of all K-Tags issued in WI





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K211 MEANS OF EGRESS - GENERAL

 Walkways need to be kept clear of any and all obstructions <u>at all</u> <u>times</u>

K211 Means of Egress – General

Aisles, passageways, corridors, exit discharges, exit locations, and accesses are in accordance with Chapter 7, and the means of egress is continuously maintained free of all obstructions to full use in case of emergency, unless modified by 18/19.2.2 through 18/19.2.11. 18.2.1, 19.2.1, 7.1.10.1

- Exit enclosures 1-2 hr rated
- Number of exits
- 36" Egress width
- Doors One hand one motion
- Emergency and Egress Lighting
- Exit Signs





K222 EGRESS DOORS

- Special locking arrangements
- Provide justification of clinical or special need locking

Clinical Needs

- 1. One lock per door
- 2. Rapid removal of occupants
- 3. Remote control from within smoke

compartment

4. All Locks keyed alike & staff has key

Egress Doors Doors in a required means of egress shall not be equipped with a latch or a lock that requires the use of a tool or key from the egress side unless using one of the following special locking arrangements: CLINICAL NEEDS OR SECURITY THREAT LOCKING Where special locking arrangements for the clinical security needs of the patient are used, only one locking device shall be permitted on each door and provisions shall be made for the rapid removal of occupants by: remote control of locks; keying of all locks or keys carried by staff at all times; or other such reliable means available to the staff at all times. 18.2.2.2.5.1, 18.2.2.2.6, 19.2.2.2.5.1, 19.2.2.2.6 SPECIAL NEEDS LOCKING ARRANGEMENTS Where special locking arrangements for the safety needs of the patient are used, all of the Clinical or Security Locking requirements are being met. In

used, all of the Clinical or Security Locking requirements are being met. In addition, the locks must be electrical locks that fail safely so as to release upon loss of power to the device; the building is protected by a supervised automatic sprinkler system and the locked space is protected by a complete smoke detection system (or is constantly monitored at an attended location within the locked space); and both the sprinkler and detection systems are arranged to unlock the doors upon activation.

18.2.2.2.5.2, 19.2.2.2.5.2, TIA 12-4

K222



Special Needs

- 1. The building must be <u>fully sprinkled</u>
- 2. <u>Smoke detectors</u> throughout locked space
- 3. Staff can rapidly and <u>readily unlock</u> doors at all times
- 4. <u>Remotely unlock</u> from constantly attended location within locked space
- 5. Unlock with loss of power and activation of smoke detector or sprinkler









Delayed Egress

- 1. Hardware is listed
- 2. Room has <u>low/ordinary</u> haz contents
- 3. Building <u>fully sprinkled</u> or fully smoke detected
- 4. Doors release within <u>15 sec</u> of pushing the release device (with max 15 lbf for max 3 sec)
- 5. Door alarms
- 6. Unlocks with sprinkler or loss of power
- 7. Only manual relock
- 8. Sign

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DELAYED-EGRESS LOCKING ARRANGEMENTS

Approved, listed delayed-egress locking systems installed in accordance with 7.2.1.6.1 shall be permitted on door assemblies serving low and ordinary hazard contents in buildings protected throughout by an approved, supervised automatic fire detection system or an approved, supervised automatic sprinkler system.

18.2.2.2.4, 19.2.2.2.4

□ ACCESS-CONTROLLED EGRESS LOCKING ARRANGEMENTS

Access-Controlled Egress Door assemblies installed in accordance with 7.2.1.6.2 shall be permitted.

18.2.2.2.4, 19.2.2.2.4

□ ELEVATOR LOBBY EXIT ACCESS LOCKING ARRANGEMENTS

Elevator lobby exit access door locking in accordance with 7.2.1.6.3 shall be permitted on door assemblies in buildings protected throughout by an approved, supervised automatic fire detection system and an approved, supervised automatic sprinkler system.

18.2.2.2.4, 19.2.2.2.4

PUSH UNTIL ALARM SOUNDS DOOR CAN BE OPENED IN 15 SECONDS

NFPA 101-2012, 18/19.2.2.2.4 & 7.2.1.6.1

Access Control

- 1. <u>Motion sensor</u> on egress side
- 2. Unlocks with sprinkler, fire alarm, or loss of power
- 3. Has <u>Manual release</u> device
 - Sign that reads <u>"Push to Exit"</u>
 - Remain unlocked for at least 30 sec





NFPA 101-2012, 18/19.2.2.2.4(3) & 7.2.1.6.2

THANK YOU

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