

WISCONSIN HEALTHCARE ENGINEERING ASSOCIATION

"providing quality education, advocacy and outreach within our healthcare community"

Welcome to WHEA's "Code Refresher Introduction to Healthcare Code Standards - What's Changed?" Webinar!

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This program will
begin promptly at 9:30 am.

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WHEA WEBINAR PRESENTS

INTRODUCTION REFRESHER HEALTHCARE CODES & STANDARDS



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WHEA CODE COMMITTEE

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Jeff Eckstein, AIA, NFPA, ASHE
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Healthcare Webinar Format

Multiple Power Points will be used to
Cover Material:

- Part One: Survey Process & LSC Overview
- Part Two: Key Life Safety & Building Code Definitions
- Part Three: Life Safety Code 101 Format & Structure
- Part Four: International Building Code Overview

Life Safety Code & the CMS Survey Process

PART ONE

Federal Medicare (T-18) – Medicaid (T-19) Certification Process

- When a facility comes into the Medicare and/or the Medicaid program, the “physical plant”, the building, must meet 42 Code of Federal Regulations (CFR) Subpart 483.70, Physical Environment.

CFR Subpart 483.70, Physical Environment requires compliance with The Life Safety Code, NFPA 101 – 2000 edition.

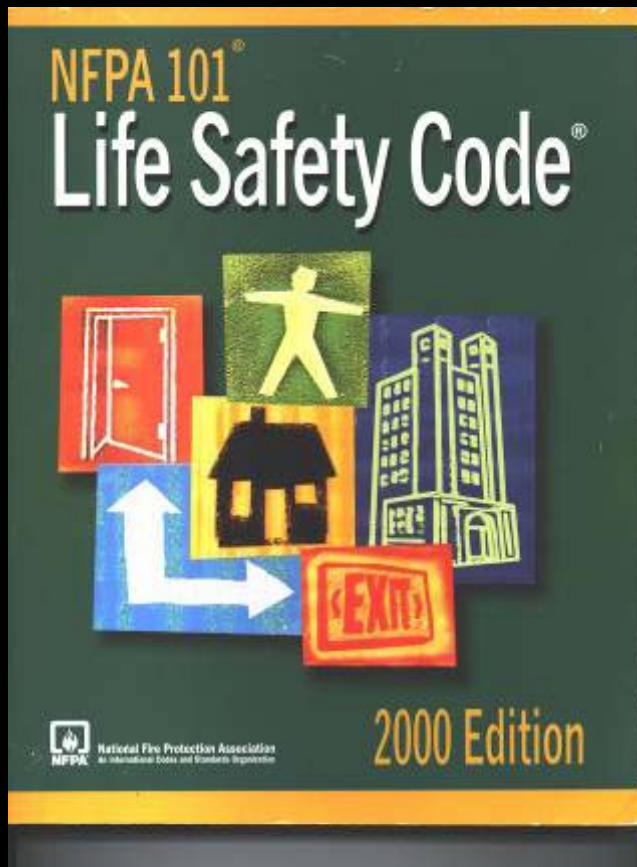
“Initial – Ongoing- Annual or Validation Surveys ”

- The Centers for Medicare & Medicaid Services (CMS) contracts with a state agency in each state to conduct an annual survey of each Long Term Care provider who participates.
- Hospitals can Utilize CMS surveys with States or Accredited Surveying Agencies i.e. The Joint Commission, Osteopathic Assoc. etc.
- ASC's use Accredited Surveying Agencies some States have Licensing, WI does not.
- Satellite Facilities of Hospitals often extend care to ASC's or Clinical Business Functions

The Joint Commission Certification for Hospitals & Nursing Homes

- Environment of Care Standards include the Life Safety Code 101 Standards
- Key Areas:
- Life Safety, Emergency Management, Utilities Management, Maintenance Management, Infection Control, Safety Management, & Security Management.
- Also: Homeland Security

NFPA Standards– 2000 editions Life Safety Code 101



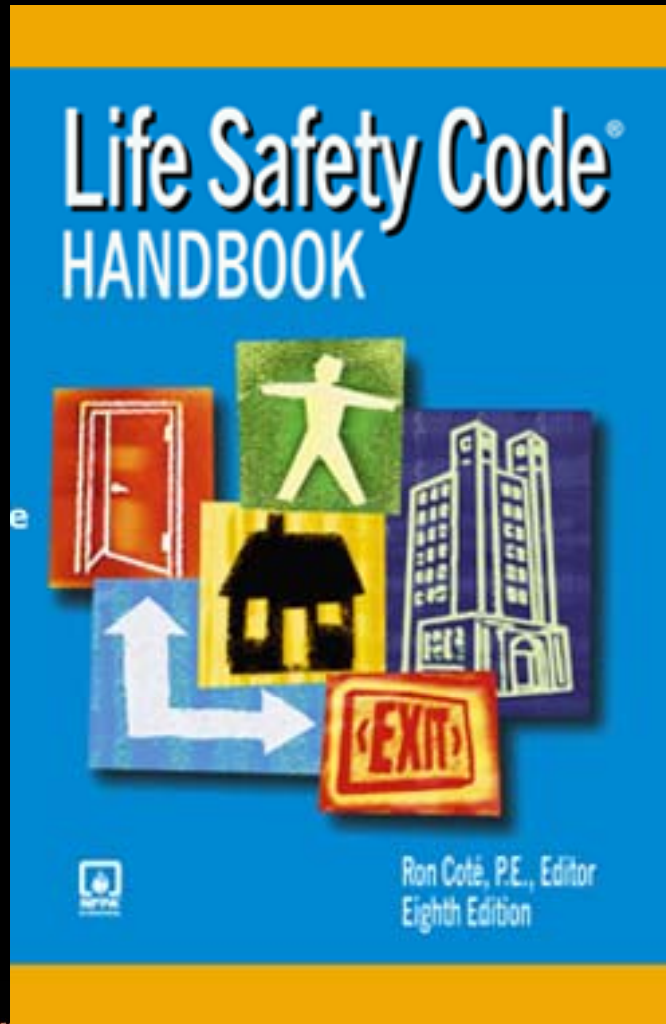
- Participants in the Medicare & Medicaid program must comply with the National Fire Protection Association (NFPA) 101 – Life Safety Code, 2000 edition.

Original Life Safety Code Adoption



NFPA Standards– 2000 editions

Life Safety Code 101



- The Handbook Provides Technical and Design Examples
- Provides Interpretations with Examples
- Note: Caution must be used as CMS is the Final Authority for Interpretation Decisions

NFPA Life Safety Code 101 2000 Edition

- Occupancy Based Code
- Chapters 1 - 10 are general requirements
- Chapters 11 - 42 are specific requirements based on Occupancy classification
- Chapter 18 – Requirements for New Health Care
- Chapter 19 – Requirements for Existing Health Care

NFPA Life Safety Code 101 2000 Edition Referenced Standards

REFERENCE Document	CMS/DHFS	WI Commerce	Joint Commission	VA
1- Fire Prevention Code		2000-Comm 14		
10- Standard for Fire Extinguishers	1998		1998	2002
13- Sprinkler System Installation	1999	2002	1999	2002
14-Private Standpipes & Hose Systems	2000		2000	2003
25- Maintenance Water based systems	1998		1998	2002
30- Flammable & Combustible Liquids	1996	Comm 10	1996	2000
31-Oil Burning Equipment	1997	Comm 41	1997	2001
45-Fire Protection for Labs	1996		1996	2000
54- National Fuel Gas Code	1999		1999	2000
58-Liquified Petroleum Gas	1999		1999	2001
70- National Electrical Code	1999	2005-Comm 16	1999	2002
72- National Fire Alarm Code	1999	2002	1999	2002
80- Standard for Fire Doors & Windows	1999		1999	1999
82- Incinerators, Waste, Linen handling	1999		1999	1999
88- Parking Structures	1998		1998	2002
90A- Air Conditioning & Ventilation	1999		1999	2002
90B- Warm Air & AC Systems	1999		1999	2002
91-Exhaust Systems vapors, gases, mists	1999		1999	1999
96- Commercial Cooking Equipment	1998		1998	2001
99- Health Care Facilities	1999		1999	2002
101A Alternatives to Life Safety Code	1998		1998	
101- Life Safety Code	2000	2000	2000	2003
110- Emergency Power Systems	1999		1999	2002
111-Stored Electrical Energy Emergency	1996		1996	2001
ANSI A17 Elevators	1993	2000-Comm 18	1993	2000

NFPA Life Safety Code 101 2000 Edition

- CMS adopted NFPA 101 – 2000 edition effective March 2003.
- Buildings built prior to March 2003 will be surveyed against the requirements for Existing Health Care.
- Buildings Built after March 2003 will be surveyed against the requirements for New Health Care
- Some requirements are “Retro-active”

Retro-Active Requirements

- No roller Latches:
- ADA-ANSI require Latching Handle with Lever Action
- Sliders at present must Latch:
 - “Retro-fit” Hardware



NFPA Life Safety Code 101 2000 Edition

- Overview of Life Safety Code Basics:
 - CMS uses “K” tags as reference numbers
 - Key Components of the Life Safety Code 101
 - Construction Type
 - Finishes
 - Corridor Walls – “Containment”
 - Egress & Protected Enclosures
 - Doors
 - Smoke Barriers – “Compartmentation”
 - Hazard Protection
 - Sprinkler Protection – Fire Alarm Notification

K12 – Construction Type

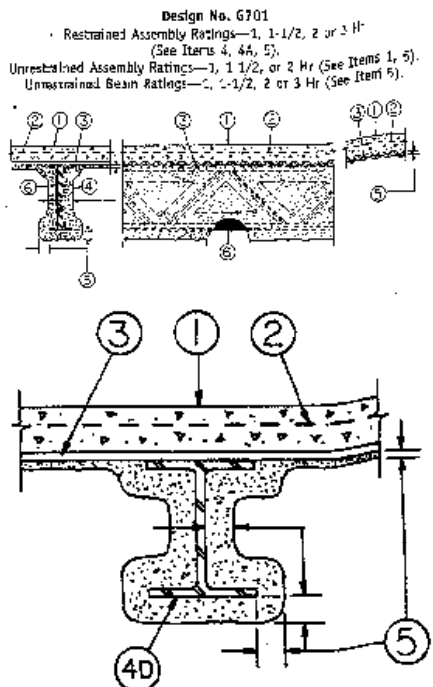
- Know what construction types are allowed in the 2000 Edition of NFPA 101 - Life Safety Code (LSC)
 - Number of stories
 - Sprinkler status
 - Different Requirements for New and Existing Healthcare Occupancies

K12 – Type II(000)



K12 – Type II(000)





Design No. G701
 Restrained Assembly Ratings—1, 1-1/2, 2 or 3 Hr.
 (See Items 4, 4A, 5).
 Unrestricted Assembly Ratings—1, 1-1/2, or 2 Hr. (See Items 1, 5).
 Unrestricted Beam Ratings—1, 1-1/2, 2 or 3 Hr. (See Item 6).

Beam—W8x8 min size. As alternate to steel beams, joist girders (Not Shown)—20 in. min. depth and 20 lb per lin ft min. weight.

1. Normal Weight or Lightweight Aggregate Concrete—Normal weight, 3500 psi compressive or siliceous aggregate concrete, 150 pcf unit weight, expanded shale, compressive strength, vitrified, lightweight concrete, expanded shale, 3500 clay or slate aggregate by rotary-4-in method, 117 pcf unit weight, 3500 psi compressive strength, vitrified, 2 oz air entrainment per bag of cement. For 1-1/2 and 2 hr assembly ratings, the 2-3/4 in. concrete topping thickness may be reduced to 2-1/2 in. when noncomposite joists are used. The Unrestricted Assembly Rating depends on the type of concrete aggregate and joist spacing as shown below.

Unrestricted Assembly Rating	Unrestricted Assembly Rating	
	Max. Joist Spacing	Joist Spacing Greater Than 3 Ft. 6 In. Occ.
Lightweight aggregate	1-1/2 Hr.	2-1/2 Hr.
Normal Weight aggregate	2 Hr.	3-1/2 Hr.

2. Welded Wire Fabric—6x6—8/8 SWG.

3. Steel Form Units—No. 28 MSQ galv corrugated sheet steel min. 2-1/2 in. wide and 1/2 in. depth of corrugations. Units welded to each joist. 30 webs per 100 sq ft of form units, with at least one weld at each joint.

Any manufacturer—Corrugated deck having a cross-section similar to above illustration.

4. Steel Joists—Min. 16K6 or heavier with min. 3/4 in. diam of larger cross sectional area for web members. As an alternate, any LH-Series steel joists spanning no greater than 60 ft. may be used, for spans greater than 60 ft., LH-Series joists may be used provided that the deflection under their published total load shall not be greater than 1/277 of the joist span.

- 4A. **Horizontal Bridging**—(Not shown)—Min 1 1/4x1-1/4x1/8 in. thick steel angles for use with noncomposite joists (Item 4). Number and spacing per Steel Joist Truss specifications. Welded to top and bottom chord of the joists. Min thickness of Spray-Applied Fire Resistant Materials on bridging angles is 1-1/2 in.
- 4B. **Composite Joists (Not Shown)**—As an alternate to Items 4 and 4A, steel joists designed for full composite action with the concrete slab. Min. overall depth 13 in. Min area of joist members shall be 0.708 sq in. for top and bottom chord angles and 0.442 sq in. for web. Designed in accordance with SJI Specifications for K-Series joists as revised to November 13, 1989.
- 4C. **Structural Steel Members**—(Not Shown)—As an alternate to 4, 4A and 4B (Not Shown)—Composite joists with top chord embedded in concrete slab. Welded to end supports. Min area of joint members shall be 0.708 sq in. for top and bottom chord angles and 0.442 sq in. for web.
- 4D. **Nonmetallic Fabric Mesh**—(Optional, not shown)—As an alternate to 4, 4A and 4B (Not Shown)—Metal lath may be used to facilitate the spray application of Spray-Applied Fire Resistant Materials on steel bar joists and trusses. The diamond mesh, 3/8 in. expanded steel lath, 1.7 to 3.1 lb/sq yd is secured to one side of each steel joist with No. 18 SWG galv. steel wire at joint web and bottom chord members, spaced 15 in. OC. When used, the metal lath is to be fully covered with Spray-Applied Fire Resistant Materials with no min. thickness requirements.
5. **Spray-Applied Fire Resistant Materials**—Applied by mixing with water and spraying in more than one coat to a final thickness as shown below to steel surfaces which must be free of dirt, loose scale and oil. Min avg and min ind density of 15/14 pcf respectively. For method of density determination, see Design Information Section, sprayed materials.

Restrained Assembly Rating, Hr.	Unrestricted Assembly Rating, Hr.	Unrestricted Beam Rating, Hr.	Min Spray-Applied Fire Resistant Materials Thickness, in.		
			Deck	Beam	Joist
1	1	1	3/2	2 1/8	1-1/2
1-1/2	1	1	1/2	2 1/8	1-1/2
1-1/2	1-1/2	1-1/2	1/2	3/4	1-1/2
2	2	2	1/2	2 1/8	1-1/2
2	2	2	1/2	1/4	1-1/2
3	3	3	1/2	3/4	1-1/2
3	3	3	1/2	1/2	1-1/2

Construction Products Div., W. R. Grace & Co. of Canada Ltd.—Types MK-4, MK-5.
Grace Construction Products—Types MK-4, MK-5, MK-5/ST, MK-6S, RG, Sonotex J.
Grace-Karna Inc.—Types MS-5/CBF, MK-6/ED, MK-6/ITY, MK-6S, Sorotex J.
Pyrotec Inc.—Type LP.
Southwest Vermiculite Co., Inc.—Types 4, 5, 5ER, 5GR, 5MD, 5EF, 5SP, 5BD, 5ET, 5GP, 5MD.
Vermiculite Prods., Inc.—Types MK-4, MK-5, VP4, VP5.

5A. **Alternate Spray-Applied Fire Resistant Materials**—Applied by mixing with water and spraying in more than one coat to a final thickness as shown below to steel surfaces which must be free of dirt, loose scale and oil. Min avg and min ind density of 22/19 pcf, respectively. For method of density determination see Design Information Section, sprayed materials.

Restrained Assembly Rating, Hr.	Unrestricted Assembly Rating, Hr.	Unrestricted Beam Rating, Hr.	Min Spray-Applied Fire Resistant Materials Thickness, in.		
			Deck	Beam	Joist
1	1	1	5/8	7/16	1-1/2
1-1/2	1	1	5/8	7/16	1-1/2
1-1/2	1-1/2	1-1/2	5/8	3/4	1-1/2
2	2	2	5/8	7/16	1-1/2
2	2	2	5/8	3/4	1-1/2
3	3	3	5/8	3/4	1-1/2
3	3	3	15/16	1/2	1-1/2
3	3	3	1 1/16	1 5/16	—

Grace Construction Products—Types Sonotex 5, Z-106, Z-106/7E, Z-106/HY.

Grace-Karna Inc.—Types Sonotex 5, Z-106, Z-106/7E, Z-106/HY.

d. **Metal Lath**—(Optional)—Metal lath may be used to facilitate the spray application of Spray-Applied Fire Resistant Materials on steel bar joists and trusses. The diamond mesh, 3/8 in. expanded steel lath, 1.7 to 3.1 lb/sq yd is secured to one side of each steel joist with No. 18 SWG galv. steel wire at joint web and bottom chord members, spaced 15 in. OC. When used, the metal lath is to be fully covered with Spray-Applied Fire Resistant Materials with no min. thickness requirements.

6A. **Nonmetallic fabric mesh**—(Optional, not shown)—As an alternate to metal lath, glass fiber mesh, weighing approximately 2.5 oz/sq yd or polypropylene fabric mesh, weighing approximately 1.25 oz/sq yd or equivalent, may be used to facilitate the spray application. The mesh is secured to one side of each joist web member. The method of attaching the mesh must be sufficient to hold the mesh and the spray-applied fire resistant material in place during application until it has cured. An acceptable method to attach the mesh is by embedding the mesh in a minimum 1/4 in. long bands of hot melted glue. The heads of glue shall

K12 – Type I(332)



K14, K15, & K16 – Interior Finish

- Old or new interior finish flame spread rating documentation should be available for review
 - Vinyl wall coverings and paint
 - Carpet (in unsprinklered zones)
 - Drapes
 - Cubicle curtain
- If applying a flame retardant agent to achieve a required rating, the agent being applied must have been tested

K14 & K15 – Interior Finish

- Wall carpet must be listed for that application
 - Carpeting that only has a Class I or II rating in accordance with testing per NFPA 253 (Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source)
 - Carpeting that also has a Class A, B, or C rating in accordance with testing per NFPA 255 (Standard Method of Test of Surface Burning Characteristics of Building Materials)

K17 – Corridor Walls

- Existing Code: New Requirement: ½ hour rating was 20 minutes. If not sprinklered smoke zone.
- New Code: New Requirement “Smoke-tight” only. Sealed Construction.



K-17 / K-18 Lobbies & Separations



K17 – Corridor Walls-Stair Egress

- New Requirements
Stair Extensions:
 - Protected Enclosure
Similar to Shaft or
called “Horizontal
Shaft Wall System

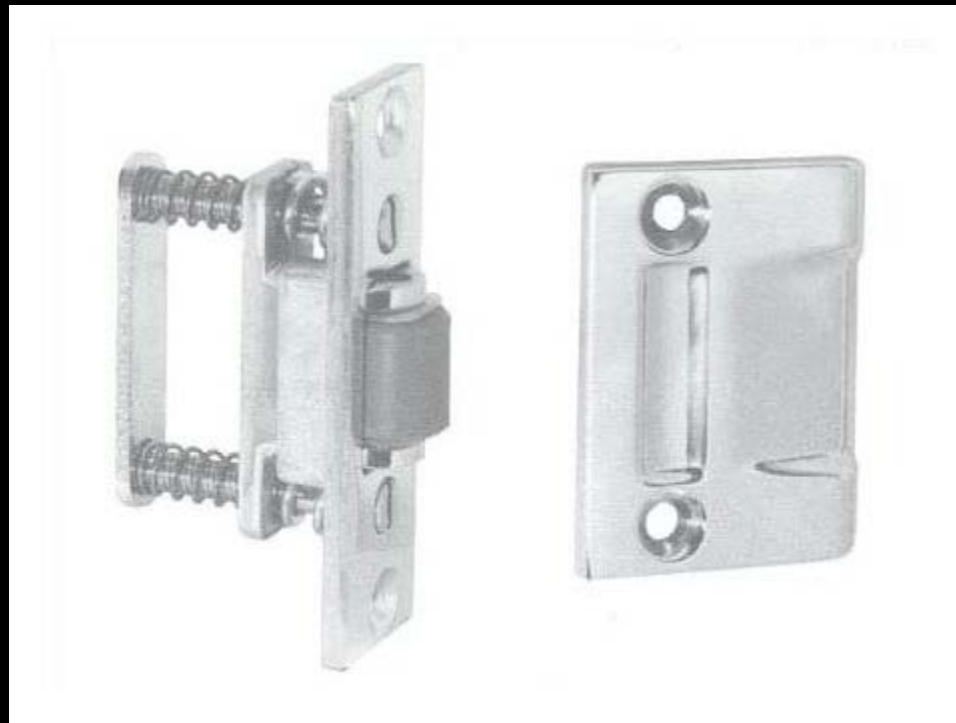


K18 – Corridor Doors

- Corridor Doors:
 - Existing Solid Core – 20 minute equivalent
 - New: “Smoke-Tight”
 - No rating requirement
 - Gap Tightness
- CMS Memo



K18 – Corridor Doors No Roller Latches Hardware



K18 – Corridor Doors



K25 – Smoke Barriers

- Code: Smoke Barrier Walls:
 - Existing ½-hour rating
 - New 1-hour rating.
- Note: Door Exceptions:
 - Existing “Solid Core” – No Vision panel
 - New: Vision Panel – 20 minute Certification / with wire-glass



K25 – Smoke Barriers

- Wall penetrations Sealed:
 - New Requirement:
 - Certified Materials
 - Properly Installed



K25 – Smoke Barriers



NFPA 101 – 2000 edition

The Life Safety Code

- NATIONAL FIRE PROTECTION ASSOCIATION – NFPA – BOSTON-QUINCY, MASS.
- The code book can be ordered from NFPA
 - 1-800 344-3555
 - www.nfpa.org

Fire Safety Code – Life Safety

Code 101

Key Words: