

NFPA 101 (and related NFPA 5000) Core Chapter Changes of Importance to Occupancy Chapter Technical Committees

Hazardous Materials (affects multiple core chapters) –
101 issue only

1.1.5 Hazardous Materials Emergencies. The *Code* also addresses other considerations that provide for occupant protection during emergency events involving hazardous materials.

3.3.171.x Hazard Material.

3.3.171.x.1 Health Hazard Material. A chemical or substance classified as a toxic, highly toxic, or corrosive material in accordance with definitions set forth in this code. [5000, 2015] (SAF-IND)

3.3.171.x.2 Physical Hazard Material. A chemical or substance classified as a combustible liquid, explosive, flammable cryogen, flammable gas, flammable liquid, flammable solid, organic peroxide, oxidizer, oxidizing cryogen, pyrophoric, unstable (reactive), or water-reactive material. [400, 2013] (SAF-IND)

3.3.171.y Hazardous Material. A chemical or substance that is classified as a physical hazard material or a health hazard material, whether the chemical or substance is in usable or waste condition. [400, 2013] (SAF-IND)

3.3.171.z Toxic Material. A material that produces a lethal dose or a lethal concentration within any of the following categories: (1) a chemical or substance that has a median lethal dose (LD50) of more than 50 mg/kg but not more than 500 mg/kg of body weight when administered orally to albino rats weighing between 200 g and 300 g each; (2) a chemical or substance that has a median lethal dose (LD50) of more than 200 mg/kg but not more than 1000 mg/kg of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 kg and 3 kg each, or albino rats weighing 200 g to 300 g each; (3) a chemical or substance that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2000 parts per million by volume of gas or vapor, or more than 2 mg/L but not more than 20 mg/L, of mist, fume, or dust when administered by continuous

inhalation for 1 hour, or less if death occurs within 1 hour, to albino rats weighing between 200 g and 300 g each. [5000, 2015] (SAF-IND)

3.3.171.z.1 Highly Toxic Material. A material that produces a lethal dose or lethal concentration that falls within any of the following categories: (1) a chemical that has a median lethal dose (LD50) of 50 mg/kg or less of body weight when administered orally to albino rats weighing between 200 g and 300 g each; (2) a chemical that has a median lethal dose (LD50) of 200 mg/kg or less of body weight when administered by continuous contact for 24 hours, or less if death occurs within 24 hours, with the bare skin of albino rabbits weighing between 2 kg and 3 kg each or albino rats weighing 200 g to 300 g each; (3) a chemical that has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 mg/L or less of mist, fume, or dust, when administered by continuous inhalation for 1 hour, or less if death occurs within 1 hour, to albino rats weighing between 200 g and 300 g each. [400, 2013] (SAF-IND)

4.1.3 Hazardous Materials Emergencies. An additional goal is to provide reasonable life safety during emergency events involving hazardous materials regulated by NFPA 30, NFPA 45, NFPA 54, NFPA 55, NFPA 58, NFPA 400, and NFPA 495.

4.2.3 Hazardous Materials Emergencies Protection. Fundamental safeguards shall be provided to reasonably prevent or mitigate events involving hazardous materials as addressed in 4.1.3 to allow the time needed to evacuate, relocate, or defend in place occupants who are not intimate with the initial emergency incident.

7.12 Special Provisions for Hazardous Materials.

7.12.1 Hazardous materials that are used or stored, and that are also classified as high-hazard contents in accordance with 6.2.2, shall comply with Section 7.11 of this *Code*.

7.12.2 Where required by the provisions of Chapter 11 through Chapter 43, occupancies with hazardous

materials shall comply with both of the following:

(1) Means of egress requirements of this *Code*

(2) Applicable means of egress requirements of NFPA 30, NFPA 45, NFPA 55, NFPA 58, NFPA 400, and NFPA 495 that are stricter than the means of egress requirements of this *Code*.

If occupancy chapter TC wants to reference, follow this format:

xx.2.11.3 Hazardous Materials. Where hazardous materials are present, the provisions of 7.12.2 shall apply.

8.7.3 Hazardous Materials.

8.7.3.1 Where required by the provisions of Chapter 11 through Chapter 43, occupancies with storage and

handling of hazardous materials shall comply with the following codes unless otherwise modified by other provisions of this *Code*: NFPA 30, NFPA 54, NFPA 55, NFPA 58, NFPA 400, and NFPA 495.

8.7.3.2* No storage, use or handling of hazardous materials shall be permitted in any location where such storage, use or handling would jeopardize egress from

the structure, unless otherwise permitted by a document listed in 8.7.3.1.

If occupancy chapter TC wants to reference, follow this format:

(at end of xx.3.2s) Hazardous Materials. Where hazardous materials are stored or handled, the provisions of 8.7.3.1 shall apply.

Annex C NFPA Documents on Hazardous Materials

This annex is not a part of the requirements of this NFPA document but is included for informational purposes only.

C.1 General.

C.1.1 NFPA 30, NFPA 45, NFPA 54, NFPA 55, NFPA 58, NFPA 400, and NFPA 495 represent a comprehensive set of requirements for protection against hazardous material emergencies appropriate to the level of safety afforded by the *Life Safety Code*.

C.1.2 Where a conflict exists between applicable requirements, an analysis should be made and the proper applicable requirement should be implemented or conformed to subject to the approval of the AHJ. [400: A.4.4]

C.1.3 The safe handling, collection, and disposal of hazardous waste can be accomplished only if the physical, chemical, and hazardous properties of its

components are known and that information is properly applied. [400: A.4.5 (part)]

C.1.4 NFPA 30, 45, 55, and 400 include maximum allowable quantities (MAQs) and the control area concept, and limits the MAQs within each control area. An established set of requirements apply to control areas with less than the MAQs. Control areas with hazardous materials quantities above the MAQs require additional controls or commensurate safeguards and features. NFPA 45 uses the term laboratory unit which correlates to and is similar to control areas. From NFPA 400, “The purpose is to permit limited amounts of hazardous contents in occupancies having minimum controls without triggering the more restrictive Protection Level 1 through Protection Level 4 building requirements.” [400: A5.1 (part)]

C.2 Scope and Exclusions of Other Documents

Addressing Hazardous Areas. The following scope and exclusions are provided from NFPA 30, NFPA 45, NFPA 54, NFPA 55, NFPA 58, NFPA 400, and NFPA 495 to clarify the applicability of each code. Refer to individual documents for additional definitions, and requirements.

(Extensive scope and exclusions extracts follow from this point)

Chapter 4 (101 issue only)

4.6.10 Construction, Repair, and Improvement Operations.

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4.6.10.2 Where required by Chapters 11 through 43, construction, alteration, and demolition operations shall comply with NFPA 241.

If occupancy chapter TC wants to reference, follow this format:

xx.1.1.y Where construction, alteration, or demolition operations are conducted, the provisions of 4.6.10.2 shall apply.

Chapter 7 (also 11.1.6.5 of NFPA 5000)

7.1.6 Walking Surfaces in the Means of Egress.

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7.1.6.5* Grab Bars for Bathtubs, Bathtub-Shower Combinations and Showers.

7.1.6.5.1 General.

7.1.6.5.1.1 Where required by Chapters 11 through 43, new bathtubs, bathtub-shower combinations and showers, for use by occupants, shall be provided with grab bars complying with 7.1.6.5.2 through 7.1.6.5.5, except as otherwise permitted for showers in 7.1.6.5.1.2, with all dimensions referring to the centerline of the grab bar unless otherwise stipulated.

If occupancy chapter TC wants to reference, follow this format:

xx. 2 Means of Egress Requirements.

xx.2.1 General.

xx.2.1.y Where bathtubs, bathtub-shower combinations, or showers are present, grab bars shall be provided in accordance with the provisions of 7.1.6.5.

Residential occupancy committees, where living units have means of escape, rather than means of egress, will need craft different language. For example, see 24.2.1.

7.1.6.5.1.2* Where a dedicated shower does not expose users to changes in elevation exceeding 0.5 inch (13 mm), as described in 7.1.6.2, and it provides slip resistance for all surfaces when wet, as a foreseeable condition described in 7.1.6.4, the requirements of

7.1.6.5.2 through 7.1.6.5.5 shall apply only if grab bars are installed.

7.1.6.5.2 Vertical Grab Bar. A vertical grab bar shall be provided either installed on the control end wall of the bathtub, bathtub-shower combination and shower as specified in 7.1.6.5.2.1 or as a free standing, external pole as specified in 7.1.6.5.2.2.

7.1.6.5.2.1* Vertical Grab Bar on Control End Wall.

(A) A vertical grab bar, with a minimum length of 24 in. (610 mm), and its lower end between 36 and 39 in. (915 and 990 mm) above the finished floor, shall be installed on the entry/egress side of the control end wall of the bathtub, bathtub-shower combination and shower unit.

(B) The grab bar shall be located at least 6 in. (150 mm), measured horizontally, from any shower curtain rod fixing point on the wall.

7.1.6.5.2.2* Vertical Grab Bar as Free Standing, Vertical Pole. A vertical, pole-type grab bar fixed to the floor and either the room ceiling or an adjacent wall shall be installed outside of the bathtub, bathtub-shower combination or shower unit within 6 in. (150 mm), measured horizontally, outside of the outer edge of the bathtub, bathtub-shower combination or shower and

within 30 in. (760 mm), measured horizontally, of the vertical plane of the control end wall if there is such a wall.

7.1.6.5.3 Back Wall Grab Bar. For bathtubs and bathtub-shower combinations bounded on three sides by walls, a grab bar shall be provided on the back wall either as a diagonal grab bar as specified in 7.1.6.5.3.1 or as a horizontal grab bar as specified in 7.1.6.5.3.2.

7.1.6.5.3.1* Diagonal Grab Bar on Back Wall.

(A) A diagonal grab bar shall be installed on the back wall with a minimum length of 24 in. (600 mm) with its higher end placed closer to the control end wall and located a maximum of 12 in. (305 mm) from the control end wall, with a height of 25 to 27 in. (635 to 685 mm) above rim of the bathtub.

(B) The lower end of the diagonal grab bar shall be located at a height of 8 to 10 in. (205 to 255 mm) above the rim of the bathtub and 28 to 30 in. (710 to 760 mm) from the control end wall.

7.1.6.5.3.2 Horizontal Grab Bar on Back Wall. A horizontal grab bar shall be installed on the back wall at a height of 8 to 10 in. (205 to 255 mm) above the bathtub rim with one end located a maximum of 12 in. (305 mm)

from the control end wall and the other end located a maximum of 24 in. (610 mm) from the opposite, or head, end of the bathtub.

7.1.6.5.4* Grab Bar Details.

7.1.6.5.4.1 Grab bars shall be circular in cross section with a minimum diameter of 1 1/4 in. (32 mm) and a maximum diameter of 2 in. (51 mm).

7.1.6.5.4.2 If, attached to a wall, the grab bar shall provide a minimum clearance, for hand grasp, of 1 1/2 inches (38 mm).

7.1.6.5.4.3 The size and clearance dimensions required by 7.1.6.5.4.1 and 7.1.6.5.4.2 shall be provided, as a minimum, within the height requirements range and the minimum length requirements range of the other provisions of 7.1.6.5.

7.1.6.5.5 Grab Bar Structural Loading. Grab bars shall be designed and constructed to the structural loading conditions in accordance with the building code.

Door Locking Terminology Changes

*Changes made to Chapter 7 (and NFPA 5000 Chapter 11).
“Global” First Revisions (FRs) by MEA will make
correlative changes throughout the Code for consistency.
No need for Occupancy TCs to create FRs.*

“Electrically controlled egress door assemblies” changed to “door hardware-release of electrically locked egress door assemblies”

“Delayed-egress locking systems” changed to “delayed-egress electrically locking systems”

“Access-controlled egress door assemblies” changed to “sensor-release of electrical locking systems”

Chapter 8 Changes

1. FR-2501, Wall Marking and Identification (Section 8.1.2.3, FR-3501 in NFPA 5000)

NOTES: Not occupancy dependent, exempts existing assemblies

8.2.2.5* Wall marking and identification. For other than existing assemblies, where there is an accessible concealed floor, floor-ceiling or attic space, fire barriers, smoke barriers and smoke partitions shall be

permanently identified with signs or stenciling in the concealed space and shall comply with all of the following:

1. Be located in accessible concealed floor, floor-ceiling or attic spaces;

2. Be located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition; and

3. Include lettering not less than 3 inches (76 mm) in height with a minimum 3/8 inch (9.5 mm) stroke in a contrasting color.

4. Identify the wall type and its fire resistive rating as applicable.

2. FR-6502, Opening Protectives for Fire Barriers (Section 8.7 through 8.9, FR-3515 in NFPA 5000)

NOTES: Section is being reorganized and updated with additional minor technical changes; all justification for individual technical changed is provided in substantiation.

3. FR-2505 and -2506, Joint and Penetration air leakage quantification (Section 8.11.5.2, FR-3510 and Section 8.11.7, FR-3511 in NFPA 5000)

NOTES: Provides performance criteria for firestop systems in joints and penetrations; new construction only (will confirm with TC during Second Draft if language has to be added to 8.5.7.2 regarding new construction)

8.5.6.5 In new construction, penetrations shall be protected by an approved through penetration firestop system installed and tested in accordance with the requirements of UL 1479 for air leakage. The L rating of the system measured at 0.30 inch (7.47 Pa) of water in both the ambient temperature and elevated temperature tests, shall comply with one of the following:

1. 5.0 cfm per square foot (0.025m³ / s · m²) of penetration opening for each through-penetration firestop system; or

2. A total cumulative leakage of 50 cfm (0.024m³/s) for any 100 square feet (9.3 m²) of wall area, or floor area.

8.5.7.2

Joints made within, between or at the perimeter of smoke barriers shall be protected with a joint system that is ~~capable of limiting the transfer of smoke.~~

~~8.5.7.3~~

~~Joints made within or between smoke barriers shall be protected with a smoke-tight joint system that is capable of limiting the transfer of smoke~~ tested in accordance with the requirements of UL 2079 for air leakage. The L rating of the joint system shall not exceed 5 cfm per linear foot (0.00775 m³/s m) of joint at 0.30 inch (7.47 Pa) of water for both the ambient temperature and elevated temperature tests.

4. FR-2510, Mezzanines (Section 8.13.2.1, FR-3507 in NFPA 5000)

NOTES: Removed text making exception applicable only to special purpose occupancies; text exempts normally unoccupied equipment platforms in any occupancy from being considered part of the 1/3 open floor area calculation for mezzanines.

8.6.10.2.1

The aggregate area of mezzanines located within a room, other than ~~those located in special purpose industrial occupancies~~ normally unoccupied equipment platforms, shall not exceed one-third the open area of the room in which the mezzanines are located. Enclosed space shall not be included in a determination of the size of the room in which the mezzanine is located.

5. FR-2507, Hazardous Materials

NOTES: Accepted hazmat task group proposed changes in their entirety – see 8.7.3 on pages 3 and 4 of this document

Chapter 9

NFPA 101 FR-1007 (NFPA 5000 FR-1502, 55.1.4)

9.11.4* Integrated Systems.

Where required by Chapters 11 through 43, and where fire protection systems are integrated with other building systems and equipment, the integrated systems shall be tested in accordance with NFPA 4.

A.9.11.4

It is also recommended that fire protection and life safety systems be commissioned in accordance with NFPA 3.

Staff note: Integrated systems are defined by NFPA 3 and NFPA 4 as, “A combination of systems that are required to operate together as a whole to achieve overall fire protection and life safety objectives.” They can include fire alarm systems, suppression systems, and other life safety systems. As such, within the occupancy chapters, a reference to the new 9.11.4 should probably be located in the X.7 section (Operating Features), rather than under the alarm or extinguishment requirements. As an example, such language might be formatted as follows:

xx.7.8 Integrated Fire Protection Systems. *Integrated fire protection systems shall be tested in accordance with 9.11.4.*

NFPA 101 FR-1006 (NFPA 5000 FR-1505, 55.13)

9.14 Risk Analysis for Mass Notification Systems.

9.14.1 Where Required.

Where required by Chapters 11 through 43, a risk analysis for mass notification systems shall be provided in accordance with the requirements of *NFPA 72* and the provisions of 9.14.2 through 9.14.4.

9.14.2 Considerations.

The risk analysis required by 9.14.1 shall additionally address all of the following considerations:

1. Fire and non-fire emergencies
2. Specific nature and anticipated risks of each facility
3. Characteristics of associated buildings, areas, spaces, campuses, equipment, and operations

9.14.3 Emergency Communications System.

An emergency communications system in accordance with *NFPA 72* shall be provided where need for such is identified by the risk analysis required by 9.14.1, commensurate with the likelihood, vulnerability, magnitude, and potential consequences of emergencies.

9.14.4 Emergency Action Plan.

The completed emergency action plan in accordance with Section 4.8 shall be used for the design of the mass notification/emergency communication system.

Staff note: Since mass notification and emergency communications systems are forms of communications systems, the occupancy chapter reference to the new Section 9.14 might be best located under the X.3.4 subsection. As an example, such language might be formatted as follows:

xx.3.4.5 Risk Analysis for Mass Notification Systems. A risk analysis for mass notification systems shall be provided in accordance with Section 9.14.

Chapter 10

1. FR-4505, Interior Finish Provisions (Section 10.2 through 10.8, FR-5505 in NFPA 5000)

NOTES: Complete reorganization of all of the interior finish provisions. It was not the intent to make any technical changes. The key issue is to recognize that the main test for assessing interior finish fire safety requirements is NFPA 286 (room-corner test) because any interior finish material is allowed to be tested to NFPA 286, while not all materials are allowed to be tested to ASTM E84 or to NFPA 265. Other technical changes are addressed in substantiation not should not directly impact any occupancy chapters.

2. FR-4504, Mattresses

NOTES: Provides an alternative compliance option for mattresses where required by the occupancy.

10.3.4* Where required by the applicable provisions of this *Code*, mattresses shall comply with 10.3.4.1 or 10.3.4.2, unless the mattress is located in a building protected throughout by an approved automatic sprinkler system.

10.3.4.1 The mattress shall have limited rates of heat release when tested in accordance with ASTM E 1590, ~~Standard Test Method for Fire Testing of Mattresses~~, as follows:

(1) The peak rate of heat release ~~for~~ of the mattress shall not exceed 100 kW.

(2) The total heat released by the mattress during the first 10 minutes of the test shall not exceed 25 MJ.

10.3.4.2 The mattress shall have a mass loss not exceeding 15 percent when tested in accordance with the fire test in Appendix A3 of ASTM F1085.