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# ***NFPA 101*<sup>®</sup> 2015**

## **20 Frequently Asked Questions**

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**[nfpa.org](http://nfpa.org)**

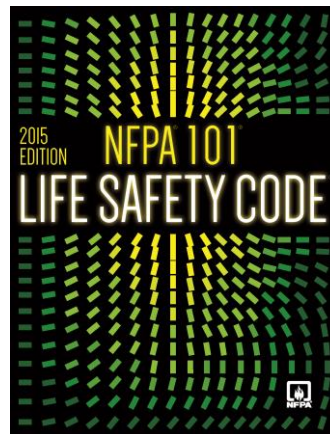
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## 20 Frequently Asked Questions



### ***1. Is the Life Safety Code applicable to an existing building that is not undergoing rehabilitation?***

Yes. The *Code* – where adopted and enforced as written – applies both to new construction and to existing buildings. The term *existing building* means to encompass the features, elements, arrangements and systems as they currently exist. In other words, it is what the AHJ would see and evaluate during an inspection of an existing building. Requirements applicable to existing buildings might be less stringent than those specifically presented as being applicable to new construction only. The existing building must comply with the requirements presented as applicable to existing buildings and the requirements that are presented without differentiation between new and existing. To assist the user, the requirements for application to a given occupancy are typically presented in a pair of occupancy chapters – one for new construction and one for existing buildings. For example, a new hospital corridor must provide a minimum width of 8 feet (2440 mm) in accordance with Chapter 18; an existing hospital corridor must provide a minimum width of 4 feet (1220 mm) in accordance with Chapter 19.

**2. Are non-complying features, elements, arrangements and systems grandfathered so as not to have to comply with the requirements applicable to existing buildings?**

No. The *Code* makes no provisions for grandfathering or waivers. Rather, the AHJ is permitted to modify a requirement for existing buildings where (1) it is evident to the AHJ that a reasonable degree of safety is provided in the absence of full compliance, and (2) retroactive application of the subject requirement would be impractical in the judgment of the AHJ. The AHJ is permitted to allow an equivalency – meaning that the intent of a prescriptive requirement is met by doing something other than that which is required – if the AHJ judges the resulting arrangement to provide equivalent protection. Further, where the AHJ requires a non-compliant feature, element, arrangement or system to be brought into compliance, the AHJ is permitted to allow a limited but reasonable time for compliance, commensurate with the magnitude of expenditure, disruption of services, and degree of hazard. It is possible that the degree of hazard, in the absence of the code-compliant feature, is so severe that the building will need to be vacated until the work is completed. However, such situation is rare.

**3. Under what timeframe do the requirements for new buildings, as applied at time of original construction, continue to apply to what is now an existing building?**

The question is best answered by way of illustration. A building was constructed new in 2009 in compliance with the requirements for new construction of the 2009 edition of the *Code* as that was the edition the jurisdiction had adopted and was enforcing at time of construction. In late 2011, NFPA issued the 2012 edition of the *Code* and the jurisdiction did not adopt it. In late 2014, NFPA issued the 2015 edition of the *Code* and the jurisdiction adopted it and began enforcing it on January 1, 2015. For the period of time after the building was constructed and the jurisdiction continued to enforce the 2009 edition, the building continued to be judged under the requirements applicable to new construction. Subsequent to January 1, 2015, the building is judged under the requirements applicable to existing buildings. However, an existing feature that is not required by the provisions applicable to existing buildings is not permitted to be removed if it remains a requirement applicable to new construction. Relative to the hospital corridor width example cited above in the answer to Question 1, an 8-foot (2440-mm) wide corridor built in 2009 for compliance with the requirements for new construction is not permitted to be decreased in width to the 4-foot (1220-mm) criterion permitted of existing situations.

**4. How do I best navigate the Code to determine applicable requirements?**

The *Code* is occupancy based, meaning that the user first determines the occupancy or occupancies present in the subject building and then goes directly to the applicable occupancy

chapter or chapters (i.e., Chapters 12 through 42). The applicable occupancy chapters then provide a complete roadmap to the core chapter (i.e., Chapters 1 through 11 and 43) criteria to be used to provide the life safety protection package required for the occupancy. If the user needs help with occupancy classification, Chapter 6 can be consulted and the xx.1.2 subsection of the candidate occupancy chapters can be reviewed for any classification criteria unique to an occupancy. For example, after initially classifying a warehouse as a storage occupancy and going to Chapter 42, the provision of 42.1.2.3 leads to user to classifying some packaging, labeling, sorting and special handling operations as industrial occupancies as addressed in Chapter 40. A suggested procedure for determining the applicable *Code* requirements is presented in A.1.1.

## ***5. Can a building be classified as having more than one occupancy?***

Yes. Occupancy classification is based on the use of a room or space. It is common for a building to be classified as having more than one occupancy. For example, the classrooms of an elementary school are classified as an educational occupancy while the cafeteria, with an occupant load of 50 or more persons, is classified as an assembly occupancy. The school receives the classification of being a multiple occupancy building that is part educational occupancy and part assembly occupancy. Multiple occupancies are addressed in 6.1.14. One of two protection methods must be provided, either that for mixed occupancies or that for separated occupancies. Where the mixed occupancies form of protection is provided, the building must comply with the most restrictive requirements of the occupancies involved, unless separate safeguards are approved. Where the separated occupancies form of protection is provided, the occupancies must be separated from each other by fire resistance-rated construction which then permits each occupancy to be regulated wholly by its applicable occupancy chapter without having to consider the requirements applicable to the other occupancy. Where exit access from an occupancy traverses another occupancy, the multiple occupancy must be protected as a mixed occupancy, meaning that the facility is not permitted to employ the separated occupancies form of protection. In the school example addressed above, if the classrooms and cafeteria share a common exit access corridor, the mixed occupancies form of protection must be provided.

## ***6. My existing movie theater building is required to be sprinklered and it has a light hazard sprinkler system that was installed in compliance with the 1973 edition of NFPA 13 that was in effect when the building was constructed in 1975. NFPA 101 Chapter 2, Referenced Publications requires compliance with the 2013 edition of NFPA 13. Must my sprinkler system be updated to comply with all the requirements of NFPA 13-2013?***

No. Existing installations that do not comply with the provisions of the referenced standard are permitted to be continued in service, provided that the lack of conformity with the standard does not present a serious hazard to the occupants as determined by the authority having jurisdiction.

For example, the sprinkler system addressed in this question was installed before *NFPA 13* required the use of quick response sprinklers in light hazard occupancies. Field reports tell us that AHJs are NOT judging the lack of quick response sprinklers in existing systems as presenting a serious hazard. Thus, the AHJ does not require the existing sprinkler system to be retrofitted with quick response sprinklers.

### ***7. Are all doors in a means of egress required to swing in the direction of egress travel?***

No. Doors are required to swing in the direction of egress travel under conditions that might elicit a number of persons arriving at the door opening at the same time; crowding against each other and the door; and creating a situation where the door cannot be swung back into the room and opened. Doors are required to swing in the direction of egress travel under any of four conditions: (1) where the door serves a room or area with an occupant load of 50 or more, (2) where the door assembly is used in an exit enclosure, (3) where the door serves a high hazard contents area, or (4) where the door serves in a horizontal exit.

### ***8. Are doors in a means of egress permitted to be latched or locked?***

The application of three performance-based provisions, along with special allowances as found in some of the occupancy chapters, determines whether doors in a means of egress can be latched or locked. The three provisions are: (1) doors in a means of egress must be arranged to be opened readily from the egress side whenever the building is occupied; (2) locks, if provided, must not require the use of a key, a tool, or special knowledge or effort for operation from the egress side; and (3) a latch or other fastening device must be provided with a releasing device that opens the door leaf with not more than one operation. Provisions for special locking arrangements [called delayed-egress locking systems, access-controlled egress door assemblies, and elevator lobby exit access door assemblies locking] are permitted where specifically allowed by an occupancy chapter. Some occupancy chapters permit additional door locking in recognition of functional needs and reliable staff action, as is the case with detention/correctional and health care occupancies.

### ***9. Are all doors in a means of egress required to be provided with panic hardware?***

No. Panic hardware is a door-latching assembly incorporating a bar, push pad, or other actuating member that releases the latch bolt upon application of force in the direction of egress travel. Similar hardware that has undergone additional testing to ensure that it can be used on a fire door assembly without adversely affecting the performance of such door is called fire exit

hardware. Panic hardware or fire exit hardware is required by some occupancy chapters. For example, three occupancies – assembly, educational, and day-care – require panic hardware or fire exit hardware on any door that latches and serves an area with an occupant load of 100 or more. Additionally, panic hardware or fire exit hardware is required, regardless of occupancy classification, on doors serving high hazard contents areas with an occupant load of more than five.

## **10. How are handrails and guards addressed?**

A handrail must be continuously graspable along a stair flight or ramp run as its purpose is to provide an aide for recovering from a misstep before it turns into a fall. A guard need not be graspable but must be of sufficient height to help arrest falls over an open side. A stair with walls at both sides is required to have handrails (at both sides for new construction and at least at one side for existing installations), but not guards. A stair with an open side presenting more than 30 inches (760 mm) to fall must be provided with a guard or guards in addition to handrails. New handrails are mounted in the 34 to 38 inch (865 to 965 mm) height range; existing handrails are subject to the same maximum height and can be positioned as low as 30 inches (760 mm). Guards must be at least 42 inches (1065 mm) in height. The handrail mounting height is permitted to be extended to as much as 42 inches (1065 mm) where the handrail forms part of the guard. In such case, the combination guard/handrail section must be graspable. Graspability is generally defined as being a circular cross section with an outside diameter of not less than 1 ¼ inches (32 mm) and not more than 2 inches (51 mm).

## **11. How do the Code requirements for ramps compare with those of accessibility codes?**

The Code requirements for ramps are in agreement with those of the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG); its successor, the ADA and ABA Accessibility Guidelines for Buildings and Facilities (ADA-ABA-AG); and ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*. A new ramp must comply with the following: it must not exceed a slope of 1 in 12; any cross slope must not exceed 1 in 48; level landings must be provided at top, bottom, and at intermediate points after each 30 inches (760 mm) of rise; the ramp and landings must be at least 44 inches (1120 mm) in clear width; changes in travel direction are permitted to be made only at landings; handrails must be provided at both sides; minimum 42-inch (1065-mm) high guards are required at open sides; and minimum 4-inch (100-mm) high curbs are required at open sides to prevent a wheelchair wheel from hanging up at the side edge.

## **12. How do the Code requirements for accessible means of egress compare with those of accessibility codes?**

The *Code* requirements for accessible means of egress are in agreement with those of the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities (ADAAG); its successor, the ADA and ABA Accessibility Guidelines for Buildings and Facilities (ADA-ABA-AG); and ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*. In buildings that are fully protected by an approved, supervised automatic sprinkler system, the related documents – including *NFPA 101* – permit a floor to serve as an area of refuge without special fire- or smoke-resistant barriers and without having to prove that tenability can be maintained into a fire emergency. The basis for the leniency is the belief that the sprinkler system will control the fire. Yes, the area might become smoky or misty and be scary to a person who remains behind when most others have evacuated, but it is not dangerous. However, *NFPA 101* requires the sprinklered building to have a feature not required by those other documents. The additional feature is a two-way communication system for communication between the elevator landing and the fire command center or a central control point approved by the AHJ. Such system must include both audible and visible signals to help ensure that the occupants who remain on the floor know that their call for rescue assistance has been received. Note that the requirements for accessible means of egress are not retroactively imposed on existing egress systems.

## **13. How is occupant load determined, for example, in an adult learning center?**

Occupant load is to be determined as the maximum probable number of persons who will occupy a space but must not be less than the number calculated based on the area of the space and how it is used. Consider two examples: (1) a building operator plans for a floor to be occupied by 200 persons; the calculated number, based on floor area and use, is 250 persons; the occupant load is established as the larger of the two numbers – 250 persons, (2) a building operator plans for a floor to be occupied by 300 persons; the calculated number, based on floor area and use, is 250 persons; the occupant load is established as the larger of the two numbers – 300 persons.

In the case of the adult learning center, the calculated occupant load for a floor is the aggregate of the calculated occupant loads of each use area. A classroom that is furnished with desks and chairs is an educational use. It is not an educational occupancy because it serves students above grade twelve, but occupant load is calculated based on USE of the space and not on the occupancy classification. The educational use–classroom occupant load factor of 20 net ft<sup>2</sup>/person (1.9 net m<sup>2</sup>/person) would be used in the calculation. If the classroom had fixed seating, the number of fixed seats would be counted. Office space on the floor would be calculated using the business use occupant load factor of 100 gross ft<sup>2</sup>/person (9.3 gross m<sup>2</sup>/person).

#### **14. What is the required minimum width of an egress path?**

The width of an egress path must be the larger of the widths that result from the following: (1) egress capacity width consideration, or (2) minimum width as specified in the *Code*. A capacity-based width is determined by calculation. For example, a level corridor that is 40 inches ( $\approx 1000$  mm) wide has sufficient egress capacity for 200 persons to travel in each direction to exit stair enclosures located at the ends of the building [40 in. / 0.2 in. per person = 200 persons (1000 mm / 5 mm per person = 200 persons)]. The calculated width must be compared against the minimum specified width and the larger of the two determines the minimum required width. The minimum specified width, per 7.3.4.1 and 7.3.4.1.2, is 36 inches (915 mm) for new construction and 28 in. (710 mm) for existing arrangements. The provision of 7.3.4.1.1 permits limited mini-paths among, for example, workstations such that the path is at least 28 in. (710 mm) wide near torso height and 18 in. (455 mm) wide at leg height.

Various occupancy chapters modify the Chapter 7 minimum 36-inch (915-mm) width requirement – some with a requirement that is more stringent and others with an allowance that is more lenient. For example, a new hospital corridor must provide a minimum clear width of 8 feet (2440 mm); a business occupancy corridor serving an occupant load of 50 or more must provide a minimum clear width of 44 inches (1120 mm). Assembly occupancy seating rows (i.e., aisle accessways) might be only 12 inches (305 mm) wide; industrial equipment access paths for limited number of occupants might be only 22 inches (560 mm) wide.

#### **15. Is it true that any assembly occupancy room with an occupant load of more than 50 must have a second exit door?**

No. The exits are typically accessed via a corridor and take the form of enclosed exit stairs or doors directly to the outside. The floor might have to provide access to a minimum of two exits. The door or doors from the assembly room to the corridor are rarely exit doors; they are exit access doors. There is no requirement that an assembly room with an occupant load of more than 50 be provided with a minimum of two exit access doors. Such spaces are typically provided with a second exit access door in order not to violate the common path of travel limitation. Assembly occupancy rooms with an occupant load of more than 50 persons are permitted only 20 feet (6100 mm) of common path. A second exit access door is installed to provide access to a second travel path before reaching what would otherwise be a single door. The presence of the second door, when it is positioned remotely from the first, has the effect of reducing the common path of travel to not more than the permitted distance.

#### **16. Where are exit signs required?**

Exit signs encompass both exit and directional exit signs. Some exit signs provide only the word EXIT; other exit signs include the word EXIT and one or more chevron-shaped directional



indicators as might be needed where the sign is mounted perpendicular to the plane of the door opening and exit access travel is in a direction parallel to the plane of the door opening. Some directional exit signs provide only the word EXIT; other directional exit signs include the word EXIT and one or more chevron-shaped directional indicators that point occupants in the direction of the exit. The signs are required: (1) at exits, such as above the door from the corridor to the enclosed exit stair or above the exit door to the outside, (2) in the exit access where the exit or way to reach the exit is not readily apparent as might be the case where additional turns in the egress path are needed to reach an exit, and (3) in exit access corridors of new construction so that no point is in excess of the particular exit sign's rated viewing distance or 100 feet (30 m), whichever is less, from the nearest sign. Where an exit sign bears no marking relative to rated viewing distance, the default 100-foot (30-m) value should be applied.

### ***17. Are exit signs required to be illuminated upon loss of electrical power?***

Exits signs are required to be illuminated – either internally or externally – while the building has normal electrical power and the building is occupied. If the building is required to be provided with emergency lighting – something that can be specified by the applicable occupancy chapter in its xx.2.9 subsection – the sign must be re-illuminated upon loss of normal electrical power. Where an occupancy chapter does not require emergency lighting, as is the case for a new one-story business occupancy building with total occupant load of fewer than 300, the exit sign can go dark and stay dark upon loss of normal power. Some exit signs are internally illuminated while the building is receiving normal power and are re-illuminated by an external power source, such as a unit lighting pack with battery and headlamp, when normal electrical power is lost.

### ***18. Are alcohol-based hand-rub dispensers (ABHR) permitted in corridors or rooms?***

Alcohol-based hand-rub dispensers (ABHR) are addressed under the special hazard protection provisions of Section 8.7, specifically in 8.7.3.3. Provided that an occupancy chapter recognizes the use of ABHR, the dispensers are permitted if they meet a host of criteria. Some occupancies, like health care, permit the dispensers in the corridor; other occupancies, like educational and day-care, permit the dispensers only if they are in rooms separated from corridors. The installation criteria address maximum container size; maximum aggregate volume of solution; minimum separation distance between dispensers; storage of refill materials; dispenser location relative to ignition sources like electrical outlets; floor coverings from the standpoint of drips and spills; alcohol content by volume; and manual and automatic operation limitations to avoid accidental dispensing. All occupancy chapters, except that for one- and two-family dwellings, include provisions that permit the use of ABHR provided the installation criteria and associated limitations are met.

## **19. How are alarm systems mandated?**

Alarm systems are addressed in Section 9.6 Fire Detection, Alarm, and Communications Systems which, by itself, does not require that an alarm system be provided. Rather, it is left to the occupancy chapters to require an alarm system and that is addressed in each occupancy chapter's xx.3.4 subsection, Detection, Alarm, and Communications Systems. The provisions of xx.3.4.1 establish the thresholds at which an alarm system is required and direct the user to the specifics in 9.6.1 which references the use of *NFPA 72*<sup>®</sup>, *National Fire Alarm and Signaling Code*. For example, all health care occupancies are required to be provided with an alarm system, but a new one-story business occupancy building would not be required to have an alarm system until the total occupant load exceeded 299. The provisions of xx.3.4.2 establish the means for initiating the alarm system and direct the user to the specifics in 9.6.2. For example, new health care occupancy alarm systems are required to be initiated by manual fire alarm boxes, **and** by sprinkler system water flow, **and** by any required automatic fire detection systems; but a business occupancy is permitted to achieve alarm system initiation by manual fire alarm boxes, **or** automatic sprinkler system water flow, **or** automatic fire detection. The provisions of xx.3.4.3 establish if occupant notification and emergency forces notification are required and direct the user to the specifics in 9.6.3 and 9.6.4. For example, an alarm system in a new business occupancy is required to provide occupant notification automatically via audible and visible signals; but in an assembly occupancy the alarm signal must be transmitted to an attended location from which a voice announcement is required to be made.

## **20. How are automatic sprinkler systems mandated?**

Automatic sprinkler systems are addressed in Section 9.7 Automatic Sprinklers which, by itself, does not require that a sprinkler system be provided. Rather, it is left to other *Code* provisions – typically within the occupancy chapters – to require a sprinkler system or offer an alternative if sprinklers are installed. The user should check, within the applicable occupancy chapter, the following: (1) the xx.3.5 Extinguishment Requirements where sprinklers might be required for all buildings of that occupancy type or if a specified threshold is met; (2) the xx.1.6 Minimum Construction Requirements as the presence of sprinklers affects the permitted number of stories in height for a particular building construction type; and (3) the xx.4.x High-Rise Buildings requirements, especially for existing buildings, as all new high-rise buildings are required to be sprinklered in accordance with 11.8.1.1(1) and 11.8.3.1. Additionally, sprinkler alternatives appear in many provisions such as those permitting an increase in the allowable dead-end corridor, common path of travel, and travel distance. For example, for new business occupancies the provisions of 38.2.5.2 permit dead-end corridors in sprinklered buildings to be increased from 20 feet (6.1 m) to 50 feet (15 m); the provisions of 38.2.5.3 permit common paths of travel in sprinklered buildings to be increased from 75 feet (23 m) to 100 feet (30 m); and the provisions of 38.2.6 permit travel distance in sprinklered buildings to be increased from 200 feet (61 m) to 300 feet (91 m).

## **About Ron Coté**

Ron Coté is Principal Life Safety Engineer in the National Fire Protection Association Building Fire Protection and Life Safety Division, Quincy, Massachusetts, USA. He joined the NFPA staff in 1981; serves as staff liaison and secretary to many of the Committees on the Life Safety Code® and Committees on the Building Construction and Safety Code®; and is co-editor of the Life Safety Code Handbook. Ron is a registered professional engineer in the discipline of fire protection in the Commonwealth of Massachusetts.

## **About National Fire Protection Association (NFPA)**

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