



CAMPUS FIRE SAFETY CODE TALK

Campus Fire Safety e-NewZone

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NFPA 1: Protection of parking garages

In February 2017, a fire broke out in the Mickey & Friends parking garage at Disneyland in Anaheim, CA. The fire was reported to officials prior to 5 p.m. and resulted in damages to eight vehicles that reported direct damage from the fire or indirectly from radiant heat at a cost of at least \$180,000. Seven Disney employees were sent to the hospital to be treated for smoke inhalation.

NFPA 1, *Fire Code*, Chapter 29, addresses protection requirements for new and existing parking garages. Chapter 29 covers parking garages or structures that include buildings, structures, or portions thereof used for the parking or storage, or both, of motor vehicles. Parking structures come in many forms and are permitted to be enclosed or open, to use ramps, and to use mechanical control push button-type elevators to transfer vehicles from one floor to another. Motor vehicles are permitted to be parked by the driver or an attendant and are permitted to be parked mechanically in automatic facilities.

Chapter 29 is a short chapter. In fact it only has three subsections and makes use of references to other expert documents on the topic of parking structures. As stated in Chapter 29 of the Code:

29.1.1 *The protection of new and existing parking garages, as well as the control of hazards in open parking structures, enclosed parking structures, and basement and underground parking structures shall comply with this chapter and Section 42.8 of NFPA 101.*

29.1.2 *Construction and protection of new parking garages shall also comply with NFPA 88A, Standard for Parking Structures.*



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29.1.3 Chapter 29 shall not apply to parking garages in one- and two-family dwellings.

Section 42.8 in NFPA 101, *Life Safety Code*, address the life safety requirements for parking garages (structures) which NFPA 88A covers the construction and protection of, as well as the control of hazards in, open and enclosed parking structures. NFPA 88A does not apply to one- and two-family dwellings.

Parking structures have some unique characteristics that are considered in the requirements contained in NFPA 101 and NFPA 88A:

- High fuel load due to the presence of fuel in vehicles.
- May or may not have a high number of occupants present. (examples: A parking garage in a city that serves commuters may only have a higher occupant load during peak work travel times, such as 8 am and 5 pm while the rest of the day the occupant load is very low. A parking garage in Disneyland has a much higher rate of turnover and will experience a more consistent occupant load during operating hours.)
- Vertical openings. Parking structures are built as one big vertical openings with floors being connected by ramp systems. This could allow for smoke and fire to spread quickly.
- Openness. Many parking structures are open to the outside air which aids with natural ventilation of fire and smoke. Those that are enclosed require additional protection measures.
- Unfamiliarity of occupants. I can never find my way out of a parking garage. I follow signs for stairs and exits and always seem to get lost. I can't be the only one!

Fortunately, we do not seem to hear about fires in parking structures all that often. Our codes and standards do their job in protecting occupants and property and provide adequate access for fire department operations such that these occupancies



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do not tend to be in the spotlight. Fortunately, when a fire does occur in a parking structure, fire protection systems and the fire department are usually able to do their job quickly and with minimal damage.

NOTE: This article first appeared as a blog post on NFPA's blog, NFPA Today, in February 2017 as part of Ms. Bigda's "Fire Code Fridays" series, and has been edited.

Link to blog:

<https://community.nfpa.org/community/nfpa-today/blog/2017/02/17/nfpa-1-protection-of-parking-garages-firecodefridays>



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