



Smoke Compartments

Health care facilities are required to be subdivided based on the 2012 edition of NFPA 101, *Life Safety Code*, Chapter 18, New Health Care Occupancies and Chapter 19, Existing Health Care Occupancies.

18.3.7.1 Smoke barriers in new health care occupancies shall be provided to form at least two smoke compartments on every floor used by inpatients for sleeping or treatment, and on every floor with an occupant load of 50 or more persons, regardless of use. The size of any such smoke compartment shall not exceed 22,500 ft² (2100 m²), and the travel distance from any point to reach a door in the required smoke barrier shall not exceed 200 ft (61 m).

19.3.7.1 Smoke barriers in existing health care occupancies shall be provided to form at least two smoke compartments on every sleeping floor with a patient bed capacity of 30 or more. The size of any such smoke compartment shall not exceed 22,500 ft² (2100 m²), and the travel distance from any point to reach a door in the required smoke barrier shall not exceed 200 ft (61 m). Where neither the length nor width of the smoke compartment exceeds 150 ft (46 m), the travel distance to reach the smoke barrier door shall not be limited.

Smoke compartments must be designed so that a person is able to reach a smoke barrier door within a distance of travel of 200 ft (61 m) from any point in a compartment, measured along the natural path of travel in accordance with 7.6.1.

7.6.1 The travel distance to an exit shall be measured on the floor or other walking surface along the centerline of the natural path of travel, starting from the most remote point subject to occupancy, curving around any corners or obstructions with a 12 in. (305 mm) clearance there from, and ending at the center of the doorway or other point at which the exit begins. Where measurement includes stairs, the measurement shall be taken in the plane of the tread nosing.

The travel distance to a smoke barrier is important based on the necessary movement of patients or residents. The travel distance is measured from the most remote point in the smoke compartment subject to occupancy as stated in 7.6.1. This will eliminate areas such as storage rooms and garages from consideration in the travel distance, since they are areas not normally occupied.

Further, 7.6.1 defines how the travel distance will be measured. Note that the distance is measured "along the centerline of the natural path of travel... curving around any corners or obstructions with a 12 in. (305 mm) clearance... and ending at the center of the doorway." For design purposes, it may be prudent to base the path of travel along the perimeter of the room. However, for direct observations of travel distance, measurement is based on the natural path of travel based on the obstructions that are present.