

## Smoke compartments

Health care facilities are required to be subdivided based on Chapter 19, Existing Health Care Occupancies, 2000 edition of NFPA 101, Life Safety Code.

**19.3.7.1** Smoke barriers shall be provided to divide every story used for sleeping rooms for more than 30 patients into not less than two smoke compartments. The size of any such smoke compartment shall not exceed 22,500 ft<sup>2</sup> (2100 m<sup>2</sup>), and the travel distance from any point to reach a door in the required smoke barrier shall not exceed 200 ft (60 m).

*Exception No. 1: Where neither the length nor width of the smoke compartment exceeds 150 ft (45 m), the travel distance to reach the smoke barrier door shall not be limited.*

The commentary in the LSC Handbook states, "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 (60 m) from any point in a compartment, measured along the natural path of travel in accordance with 7.6.2."

**7.6.2\*** 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 1-ft (0.3-m) clearance therefrom, 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 7.6.2. This will eliminate such areas as storage rooms and garages from consideration in the travel distance, since they are areas not normally occupied.

Further, 7.6.2 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 1-ft (0.3-m) 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 should be based on the natural path of travel based on the obstructions that are present.