Coffee Break Training - Fire Protection Series

Means of Egress: Stairs in the Means of Egress

No. FP-2010-52 December 28, 2010

Learning Objective: *The student shall be able to identify the dimensional requirements for stairs within the means of egress.*

According to the National Safety Council, there are about 12,000 stairway deaths per year in the United States, with half of these deaths occurring in the home. This makes stairway accidents second only to automobile accidents as the major cause of unintended injuries in the United States. The number of reported fatalities is almost four times the number of fire deaths that occur in the United States.

An essential means to reduce these accidents is to standardize the size and shape—the "geometry"—so occupants can expect a smooth and natural feeling gait as they traverse the stairs.

The model building codes prescribe minimum and maximum dimensions for the various parts of stairs. The following table lists these dimensional criteria.

Stairs are an important—and dangerous—part of a means of egress system.

Feature	Dimensional Criteria (in)	Dimensional Criteria (mm)
Minimum clear width*	44	112
Minimum clear width*, when the occupant load served is less than 50	36	91
Maximum riser height	7	178
Minimum riser height	4	102
Minimum tread depth	11	279
Minimum headroom	80	2,030
Maximum height between landings	96	3,700

*Projections, such as handrails, may extend 4-1/2 inches (114 mm) into this space.

To assure a smooth, rhythmic transition from stair to stair, the tolerance between the largest and smallest riser height or between the largest and smallest tread depth in any flight of stairs should not exceed 0.375 inch (9.5 mm).

The design and construction of stairs is given a great deal of attention in the building codes because of the potential for injuries and deaths. For additional information, refer to *International Building Code®*, Chapter 10, or NFPA 5000, *Building Construction and Safety Code®*, Chapter 11.