



Coffee Break Training - Fire Protection Series

Building Construction: Part 7: Fire Resistance Based on Separation

No. FP-2009-51 December 22, 2009

Learning Objective: The student shall be able to explain fire or horizontal separation distances for exterior wall fire resistance ratings.

The terms *fire or horizontal separation distances* appeared in a table in last week's Coffee Break Training. These terms describe the minimum distance requirements from one building to another—or to a nearby property line or exposure—to minimize the likelihood of exposure fires and establish minimum fire resistance ratings for the exterior walls.

NFPA 5000™, *Building Construction and Safety Code*® and *International Building Code*® (IBC) address these dimensions slightly differently. In NFPA 5000™, horizontal separation is the “width of the permanent open space as measured horizontally between a building exterior wall and the adjacent property line or the centerline of a facing street, alley or public way.”



These buildings pre-date modern separation requirements.

NFPA 5000™, *Building Construction and Safety Code*® Fire Resistance Ratings for Exterior Walls (hrs)

Occupancy Classification	Horizontal Separation ft (m)			
	0 to 5 (0 to 1.5)	>5 to ≤10 (>1.5 to ≤3)	>10 to ≤30 (>3 to ≤9)	>30 (>9)
Assembly, educational, day care, health care, ambulatory health care, detention and correctional, residential, residential board and care, business, industrial and storage occupancies with low hazard contents	1	1	0	0
Mercantile and industrial and storage occupancies with ordinary hazard contents	2	1	0	0
Industrial and storage occupancies with high hazard contents exceeding maximum allowable quantities per control area	Refer to NFPA 5000™, Chapter 34.			

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The IBC measures from the building face to the “closest interior lot line or to the centerline of a street, an alley or public way.” Both codes have a means to deal with “imaginary” property lines when there is more than one building on the same property and exposure protection must be addressed. Horizontal separations are measured at a 90° (1.57 rad) angle to the face of a building.

International Building Code® Fire Resistance Rating Requirements for Exterior Walls Based on Fire Separation Distance

Fire Separation Distance = X ft (m)	Type of Construction	Occupancy Group H	Occupancy Group F-1, M, S-1	Occupancy Group A, B, E, F-2, I, R, S-2, U
X > 5 (X > 1.5)	All	3	2	1
5 ≤ X < 10 (1.5 ≤ X < 3)	IA Others	3 2	2 1	1 1
10 ≤ X < 30 (3 ≤ X < 9)	IA, IB IIB, VB Others	2 1 1	1 0 1	1 0 1
X ≥ 30 (X ≥ 9)	All	0	0	0

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For additional information, refer to International Building Code®, Chapter 6, or NFPA 5000™, *Building Construction and Safety Code*®, Chapter 7. Always refer to footnotes and exceptions.



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