



Coffee Break Training - Fire Protection Series

Building Construction: Part 2: Where Fire Resistance May Be Required

No. FP-2009-46 November 17, 2009

Learning Objective: The student shall be able to identify the building construction elements that may be subject to fire resistive construction requirements.

There are many components that make up modern buildings: construction materials, plumbing systems, heating, ventilation, air conditioning and refrigeration equipment, fire protection systems and equipment, interior finish materials and furniture.

When a building is constructed, the locally adopted building code generally establishes the requirements for life safety and fire protection features. The building designer must create drawings showing that the building is in compliance with the codes; the contractor must construct the building to meet the plan and the codes; and the building and/or fire inspector is responsible to assure the final product complies with the requirements.

Not all complete buildings or their components—by the nature of their construction materials, distance from property lines or the intended use—are required to have any fire resistant construction elements. They may be erected of entirely combustible or non-combustible materials without being protected by gypsum drywall, spray-on fire-resistant materials or concrete: the most common means for creating fire resistant construction.

When building codes require fire resistant construction, the following elements must be protected to defend against a fire's damaging thermal effects*:

- Structural framing, including columns, beams, girders, trusses, and spandrels.
- Exterior and interior bearing walls. (“Bearing” walls support structural loads.)
- Interior nonbearing walls and partitions.
- Floors and ceilings, including their supporting beams and joists.
- Roofs, including their supporting beams and joists.

*In some cases, automatic fire sprinkler systems may be installed to substitute for fire resistant construction.

For additional information, refer to NFPA™ 220, *Standard on Types of Building Construction*, International Building Code Chapter 6, or NFPA 5000™, *Building Construction and Safety Code*®, Chapter 7.



Concrete and steel are two important elements of this noncombustible building type, and may be required to have some fire resistance.



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