



Coffee Break Training - Fire Protection Series

Building Construction: Fire Wall Parapet Alternatives

No. FP-2013-12 March 19, 2013

Learning Objective: The student shall be able to describe alternative design options from fire wall parapets.

Fire walls are constructed to contain a fire within a specific area that is manageable by either the built-in fire protection features or fire suppression forces.

Fire walls typically are rated as two- or four-hour fire-rated assemblies. They must run continuously from the lowest point of a building's foundation, through the roof, and to a parapet at least 30 inches (76.2 centimeters) above the roof plane. By extending the wall above the roof plane, a parapet wall prevents flames from immediately igniting a combustible roofing membrane on the opposite side of the wall. The parapet in the illustration is a classic example of how these elements are employed.



The vertical projection above the roof is the parapet on a masonry fire wall.

In modern building aesthetics, however, tall fire wall parapets often have fallen out of favor, so the building codes allow a variety of alternatives:

- Where two-hour fire-rated walls are permitted by the building code based on occupancy or construction type, the wall may stop at the underside of the roof sheathing, deck or slab if the 4 feet (122 cm) of roof assembly nearest the wall and the rated portion's entire support structure on the lower side of the fire wall have a one-hour fire-resistance rating. Roofs on both sides of the fire wall must have at least a Class B roof covering, and there may be no roof openings within 4 feet (122 cm) of the fire wall.
- Fire walls may end at the underside of **noncombustible** roof sheathing, deck or slab when roofs on both sides of the wall have at least a Class B roof covering. There may be no roof openings within 4 feet (122 cm) of the fire wall.
- In Types III, IV and V construction (see Coffee Break Training FP-2009-45), the wall may stop at the underside of **combustible** roof sheathing, deck or slab if there are no roof openings within 4 feet (122 cm) of the fire wall, the roof has at least a Class B roof covering, and the roof sheathing or deck is constructed of fire-retardant-treated wood and gypsum wallboard as detailed in the building code.

If the structure under consideration has a roof design that slopes more than two units vertical in 12 units horizontal (2:12) toward the fire wall, additional design considerations must be employed. Always refer to the design guidance provided in the locally adopted building code.

For additional information, refer to *International Building Code*, Chapter 7, or National Fire Protection Association 5000, *Building Construction and Safety Code*[®], Chapter 8.



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