U.S. Fire Administration / National Fire Academy

Coffee Break Training

Topic: Sprinklers Above Open Grid Ceilings

Learning objective: *The student shall be able to identify minimum clearance distances between sprinkler deflectors and the top of open grid ceilings.*

Open grid ceilings are an architectural feature that provide a visual sense of openness, but create potential obstructions for sprinkler discharge.

To avoid putting sprinklers beneath an open grid ceiling, the openings must be at least ¼-inch in the smallest dimension, the ceiling material thickness or depth cannot exceed the smallest dimension of the opening, and the sum of the area of all openings must be at least 70% of the area of the ceiling material.

If sprinklers are installed above the open grid ceiling, there must be adequate clearance beneath the sprinkler deflector to develop an unobstructed spray pattern. The table below provides minimum clearances measured between the sprinkler deflector and the upper surface of an open grid ceiling.

Hazard Class	Sprinkler Style		Sprinkler Spacing (ft)	Clearance (in)
Light	Spray	Old Style		
	X	X	Less than 10 x 10	≥ 18
	X		Greater than 10 x 10 but less than 10 x 12	≥ 24
		X	Greater than 10 x 10 but less than 10 x 12	≥ 36
	X	X	Greater than 10 x 12	≥ 48
Ordinary	X	NP	Less than 10 x 10	≥ 24
	X	NP	Greater than 10 x 10	≥ 36

NP = Not permitted

For additional information, refer to NFPA 13, Installation of Sprinkler Systems.