

Heat Detector and Smoke Detector Spacing and Mounting Location Matrix

Based on NFPA 72, 1999 edition

HEAT DETECTORS

SMOKE DETECTORS

Flat Ceilings

1. Smooth Ceiling	1st HD \leq 1/2 listed spacing from side wall, then spaced up to listed spacing apart, or all points on ceiling within .7 X listed spacing (2-2.4.1)	all points on ceiling within .7 X selected spacing (2-3.4.5.1.2)
2. Joisted Ceiling (> 4" deep, \leq 3' apart)	reduce spacing by 50% perpendicular to joists (mount on bottom of joist) (2-2.4.2)	See Item 5 below
3. Beamed Ceiling (4.1" - 12" deep, > 3' and < 8' apart)	reduce spacing by 33% perpendicular to beams (mount on bottom of beam or on ceiling) (2-2.4.3)	See Item 5 below
4. Beamed Ceiling (> 12" deep OR > 8' apart)	reduce spacing by 33% perpendicular to beams (mount on ceiling) (2-2.4.3)	See Item 5 below
5. Beamed or Joisted Ceiling (4.1" - 12" deep AND ceiling \leq 12' high)	(See Table 2-2.4.5.1 for ceilings over 10' high)	reduce spacing by 50% perpendicular to beams or joists (mount on bottom of beam/joist or on ceiling) (2-3.4.6.1)
6. Beamed or Joisted Ceiling (> 12" deep or ceiling > 12' high)	(See Table 2-2.4.5.1 for ceilings over 10' high)	install SDs in each bay (2-3.4.6.1)
7. Beamed Ceiling (> 18" deep and > 8' apart)	install HD in each bay (2-2.4.3)	See Item 6 above

Peaked Ceilings

8. Peaked Smooth Ceiling (> 1' in 8' rise)	install 1st HD within 3' of peak, measured horizontally, then smooth ceiling spacing until lowest HD is within 1/2 listed spacing from low side wall (2-2.4.4.1)	install 1st SD within 3' of peak, measured horizontally, then smooth ceiling spacing until lowest SD is within 1/2 selected spacing from low side wall (2-3.4.7)
9. Peaked Joisted Ceiling (Joists up the slope)	install 1st HD within 3' of peak, measured horizontally, then reduce spacing by 50% perpendicular to the joists (2-2.4.2 & 2-2.4.4.1)	install 1st SD within 3' of peak, measured horizontally, then reduce spacing by 50% perpendicular to the joists. If roof slope is > 10 degrees, SDs closest to low side can be deleted. (2-3.4.6.2(a) & 2-3.4.7)

10. Peaked Joisted Ceiling (Joists across the slope)	install 1st HD within 3' of peak, measured horizontally, then reduce spacing by 50% perpendicular to the joists (2-2.4.2 & 2-2.4.4.1)	install 1st SD within 3' of peak, measured horizontally, then reduce spacing by 50% perpendicular to the joists. (2-3.4.6.2(b) & 2-3.4.7)
11. Peaked Beamed Ceiling (Beams up the slope)	install 1st HD within 3' of peak, measured horizontally, then reduce spacing by 33% perpendicular to the beams (see 2-2.4.3 for roof slope spacing requirements) (2-2.4.4.1)	install 1st SD within 3' of peak, measured horizontally, then reduce spacing by 50% perpendicular to the beams. If roof slope is > 10 degrees, SDs closest to low side wall can be deleted. (2-3.4.6.2(a) & 2-3.4.7)
12. Peaked Beamed Ceiling (Beams across the slope)	install 1st HD within 3' of peak, measured horizontally, then reduce spacing by 33% perpendicular to the beams (see 2-2.4.3 for roof slope spacing requirements) (2-2.4.4.1)	install 1st SD within 3' of peak, measured horizontally, then reduce spacing by 50% perpendicular to the beams. (2-3.4.6.2(b) & 2-3.4.7)

Shed Ceilings

13. Shed Smooth Ceiling (> 1' in 8' rise)	install 1st HD within 3' of high side, measured horizontally, then smooth ceiling spacing until lowest HD is within 1/2 listed spacing from low side wall (2-2.4.4.2)	install 1st SD within 3' of high side, measured horizontally, then smooth ceiling spacing until lowest SD is within 1/2 selected spacing from low side wall (2-3.4.8)
14. Shed Joisted Ceiling (Joists up the slope)	install 1st HD within 3' of high side, measured horizontally, then reduce spacing by 50% perpendicular to the joists (2-2.4.2 & 2-2.4.4.2)	install 1st SD within 3' of high side, measured horizontally, then reduce spacing by 50% perpendicular to the joists. If roof slope is > 10 degrees, SDs closest to low side can be deleted. (2-3.4.6.2(a) & 2-3.4.8)
15. Shed Joisted Ceiling (Joists across the slope)	install 1st HD within 3' of high side, measured horizontally, then reduce spacing by 50% perpendicular to the joists (2-2.4.2 & 2-2.4.4.2)	install 1st SD within 3' of peak, measured horizontally, then reduce spacing by 50% perpendicular to the joists. (2-3.4.6.2(b) & 2-3.4.8)
16. Shed Beamed Ceiling (Beams up the slope)	install 1st HD within 3' of high side, measured horizontally, then reduce spacing by 33% perpendicular to the beams (see 2-2.4.3 for roof slope spacing requirements) (2-2.4.4.2)	install 1st SD within 3' of high side, measured horizontally, then reduce spacing by 50% perpendicular to the beams. If roof slope is > 10 degrees, SDs closest to low side wall can be deleted. (2-3.4.6.2(a) & 2-3.4.8)
17. Shed Beamed Ceiling (Beams across the slope)	install 1st HD within 3' of high side, measured horizontally, then reduce spacing by 33% perpendicular to the beams (see 2-2.4.3 for roof slope spacing requirements) (2-2.4.4.2)	install 1st SD within 3' of high side, measured horizontally, then reduce spacing by 50% perpendicular to the beams. (2-3.4.6.2(b) & 2-3.4.8)