

Note: Measurements shown are to the closest edge of the detector.

**FIGURE A.11.8.3(d) Example of Proper Mounting for Detectors.**

Smoke and heat detectors should be installed in those locations recommended by the manufacturer, except in those cases where the space above the ceiling is open to the outside and little or no insulation is present over the ceiling. Such cases result in the ceiling being excessively cold in the winter or excessively hot in the summer. Where the ceiling is significantly different in temperature from the air space below, smoke and heat have difficulty reaching the ceiling and a detector that is located on that ceiling. In this situation, placement of the detector on a sidewall, with the top 0.1 m to 0.3 m (4 in. to 12 in.) from the ceiling, is recommended.

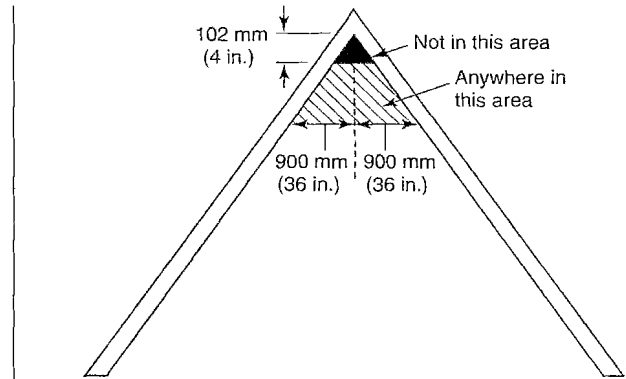
The situation described previously for uninsulated or poorly insulated ceilings can also exist, to a lesser extent, in the case of outside walls. The recommendation is to place the smoke detector on a sidewall. However, where the sidewall is an exterior wall with little or no insulation, an interior wall should be selected. It should be recognized that the condition of inadequately insulated ceilings and walls can exist in multi-family housing (apartments), single-family housing, and mobile homes.

In those dwelling units employing radiant heating in the ceiling, the wall location is the recommended location. Radiant heating in the ceiling can create a hot-air, boundary layer along the ceiling surface, which can seriously restrict the movement of smoke and heat to a ceiling-mounted detector.

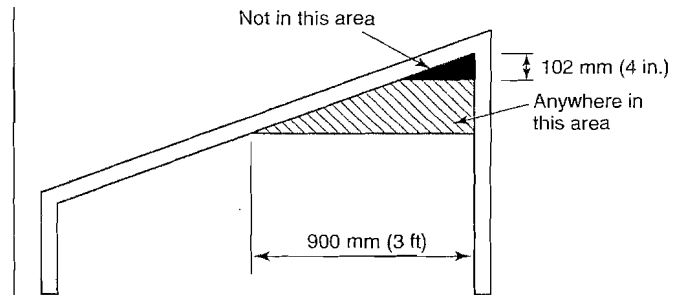
**A.11.8.3.2** See Figure A.11.8.3.2 for further information on a smoke alarm or smoke detector mounting layout for a peaked ceiling.

**A.11.8.3.3** See Figure A.11.8.3.3 for further information on a smoke alarm or smoke detector mounting layout for a sloped ceiling.

**A.11.8.3.4** See Figure A.11.8.3(d) for an example of proper mounting for smoke alarms or smoke detectors.



**FIGURE A.11.8.3.2 Example of Proper Mounting for Alarms and Detectors with Peaked Ceilings.**



**FIGURE A.11.8.3.3 Example of Proper Mounting for Alarms and Detectors with Sloped Ceilings.**

**A.11.8.4** While Chapter 11 does not require heat detectors as part of the basic protection scheme, it is recommended that the householder consider the use of additional heat detectors for the same reasons presented under A.11.8.3. The additional areas lending themselves to protection with heat detectors are the kitchen, dining room, attic (finished or unfinished), furnace room, utility room, basement, and integral or attached garage. For bedrooms, the installation of a smoke detector is recommended over the installation of a heat detector for protection of the occupants from fires in their bedrooms.

**Heat Detector Mounting — Dead Air Space.** Heat from a fire rises to the ceiling, spreads out across the ceiling surface, and begins to bank down from the ceiling. The corner where the ceiling and the wall meet is an air space into which heat has difficulty penetrating. In most fires, this dead air space measures about 0.1 m (4 in.) along the ceiling from the corner and 0.1 m (4 in.) down the wall as shown in Figure A.11.8.3(d). Heat detectors should not be placed in this dead air space.

The placement of the detector is critical where maximum speed of fire detection is desired. Thus, a logical location for a detector is the center of the ceiling. At this location, the detector is closest to all areas of the room.

The next logical location for mounting detectors is on the sidewall. Any detector mounted on the sidewall should be located as near as possible to the ceiling. A detector mounted on the sidewall should have the top of the detector between 0.1 m and 0.3 m (4 in. and 12 in.) from the ceiling.