interlogix

United Technologies

TX-6010-03-1 / RF5811I4
Smoke / Heat Sensor

Siting Guidelines

MK304 Iss 1 08/11/2018 AJM

Contents

Introduction

The installation of fire alarm systems should be in accordance with applicable local installation codes. This document has been written in conjunction with the British standard BS5839-6.

Important Note: other local installation codes may vary.

Interlogix smoke / heat sensors provide detection sensitivity selection that enables the device to be configured for Smoke only sensitivity, heat only sensitivity and combined smoke and heat sensitivity.

It is vital that the device sensitivity is set correctly, to suit the fire risk present.

Details of different detection types, their characteristics and their associated suitable environments are outlined below:

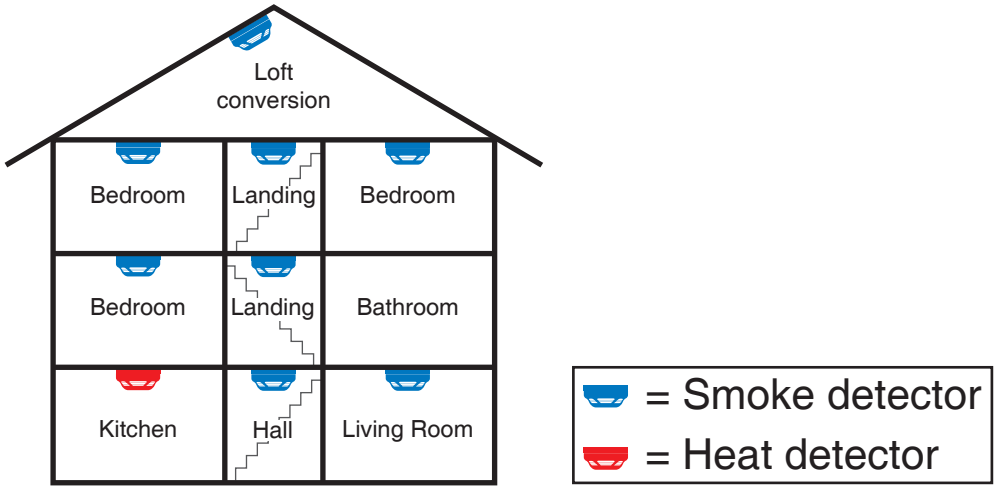
Sensor type	Detection characteristics	Suitable environment
Smoke only	Designed to operate by detecting the obscuration of the light source that occurs in the presence of smoke.	General purpose detector (*hallway, landing, living room & bedrooms etc.).*
Smoke & heat	The combining of sensors will enhance the performance of the system to detect a fire and its resistance to false alarm.	General purpose detector (*hallway, landing, living room & bedrooms etc.).*
Heat only *(rate of rise)*	Designed to respond when there is an abnormal rate of rise in temperature.	Kitchens *(normally set at low sensitivity - 72°C).*

Note: BS5839-6 recommends different siting guidelines for smoke and heat detectors. Where smoke and heat is selected, heat detector guidelines should be followed.

System categories

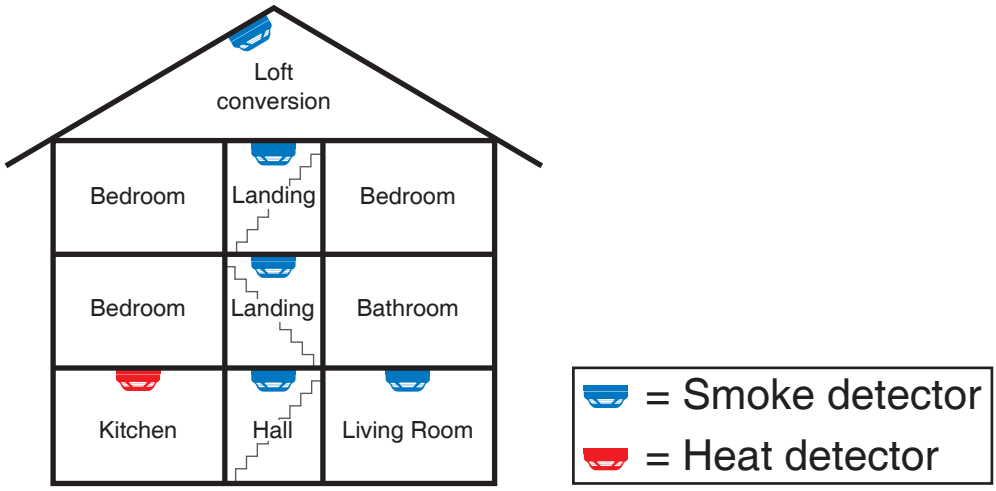
LD1 - for maximum protection

A category LD1 system provides detection in all areas where a fire could start.



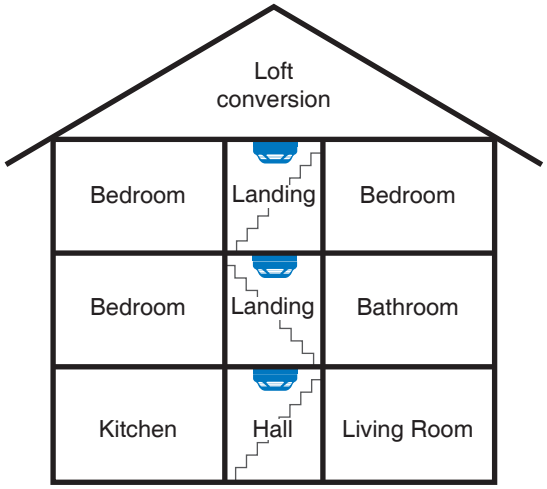
LD2 - for medium protection

A category LD2 system provides detection in all escape routes and in all high fire risk areas.



LD3 - for minimum protection

A category LD3 system provides detection in escape routes only.

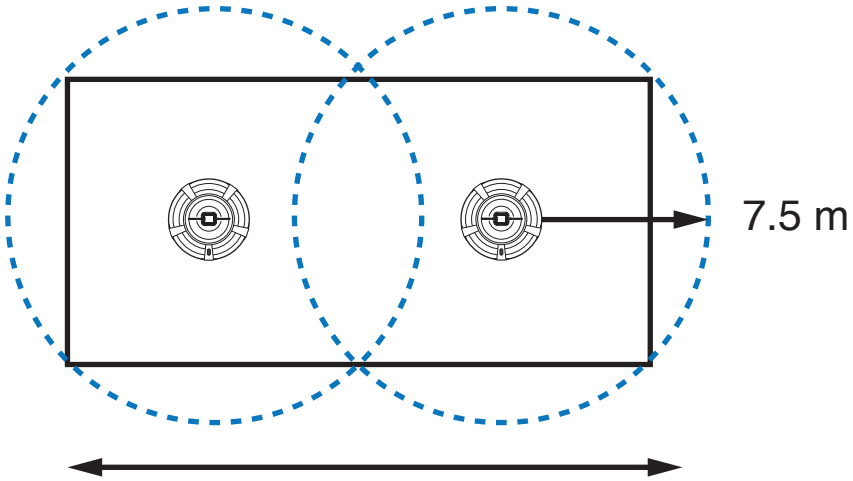


Hallway, corridor & landing detectors

applicable to:

LD3 systems LD2 systems LD1 systems

A minimum of one smoke detector should be sited in each hallway, corridor and each landing of every staircase. In hallways and corridors exceeding 7.5 m in length, no point within the hallway or corridor should exceed 7.5 m from the nearest detector.



If hallway/corridor longer than 7.5 m

Detectors between rooms / bedrooms

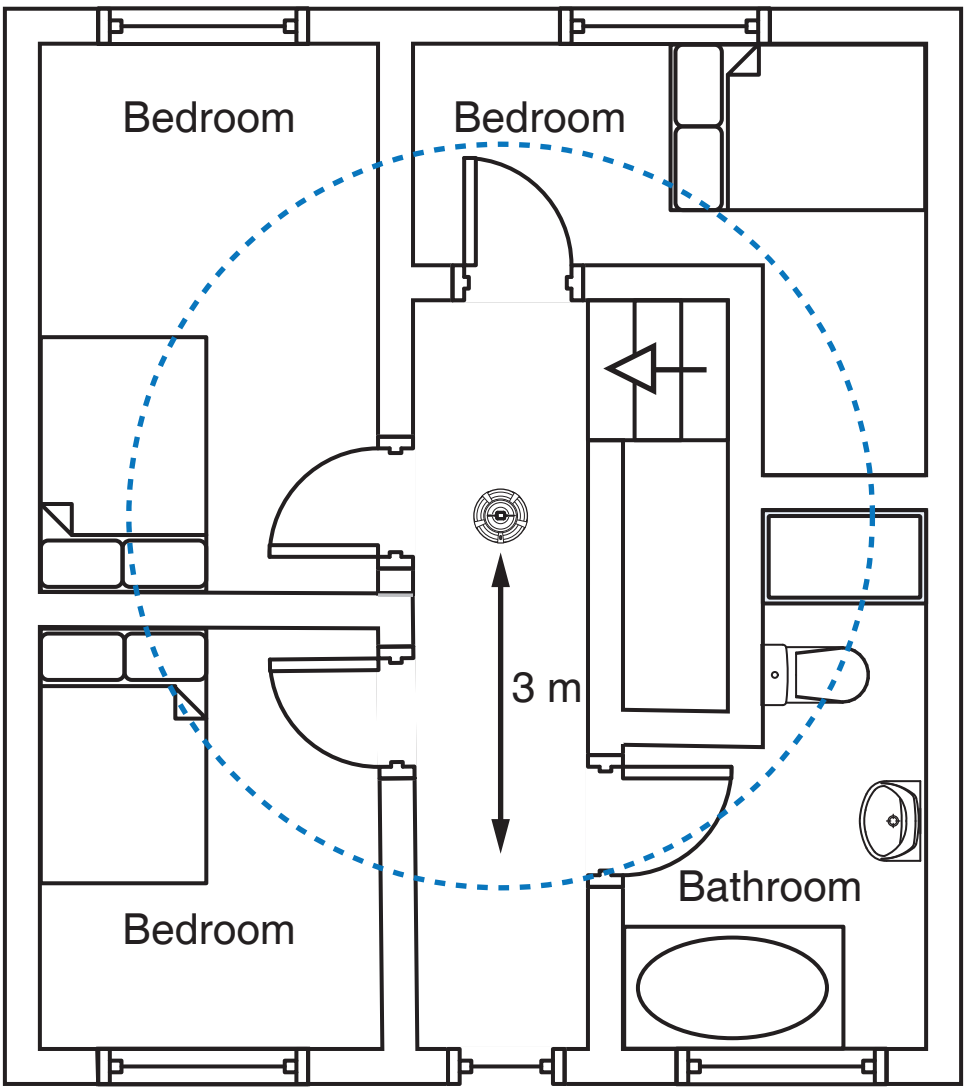
applicable to:

LD3 systems LD2 systems LD1 systems

No bedroom door should be more than 3 m from the nearest smoke detector.

Additionally, at least one smoke detector should be located between every bedroom and every other room in the dwellings, other than toilets, bathrooms or shower rooms. In single-storey dwellings protected by a single smoke detector, the detector should be as close as possible to living accommodation.

However, where rooms are located on both sides of any bedroom, a smoke detector should be sited midway between the doors to these rooms.

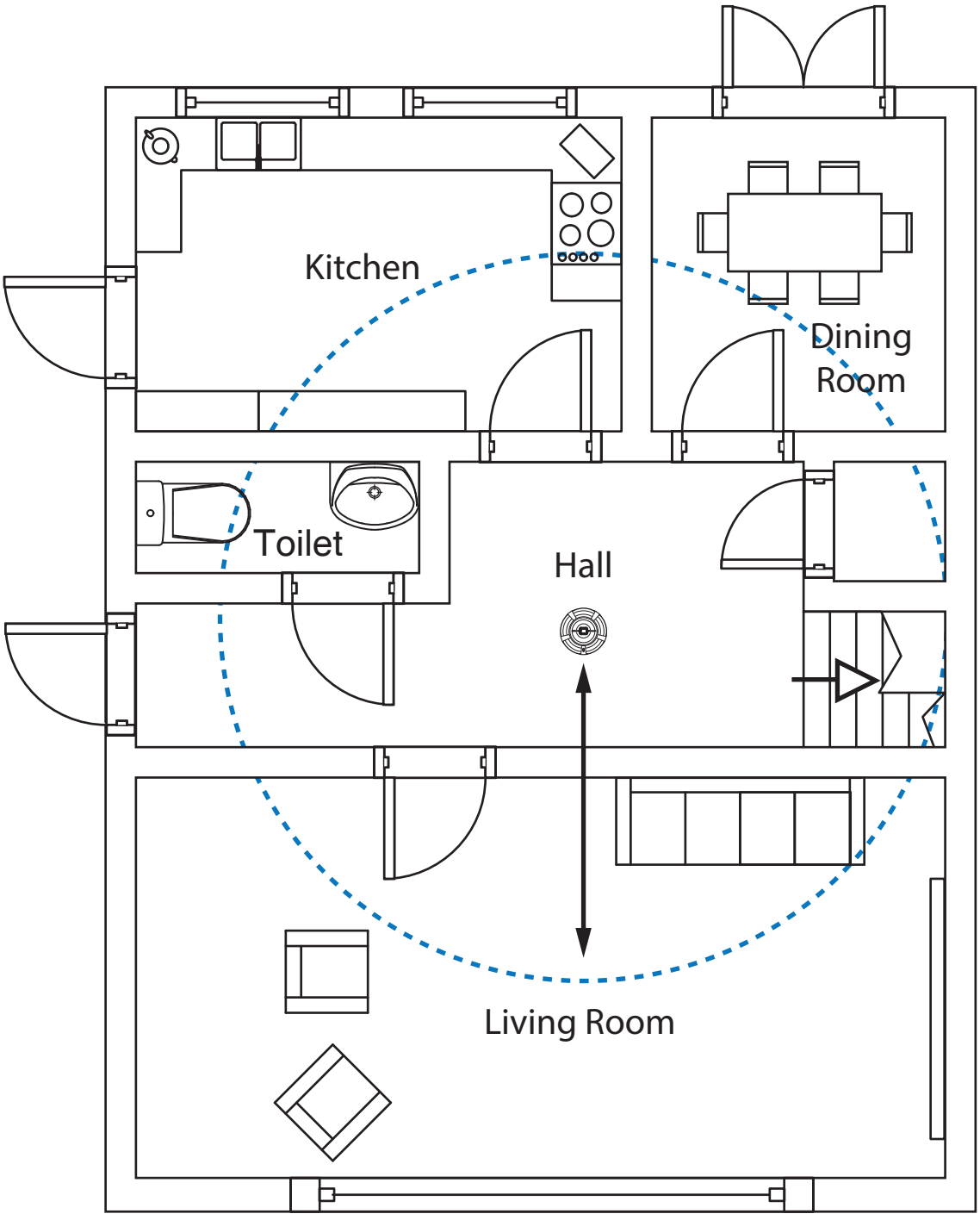


Multi-storey houses

applicable to:

LD3 systems LD2 systems LD1 systems

Multi-storey houses should have at least one smoke detector located on the ground floor between each staircase and every room, other than toilets, bathrooms or shower rooms. However, where such rooms are located on both sides of a staircase, a smoke detector should be sited midway between the doors to these rooms.

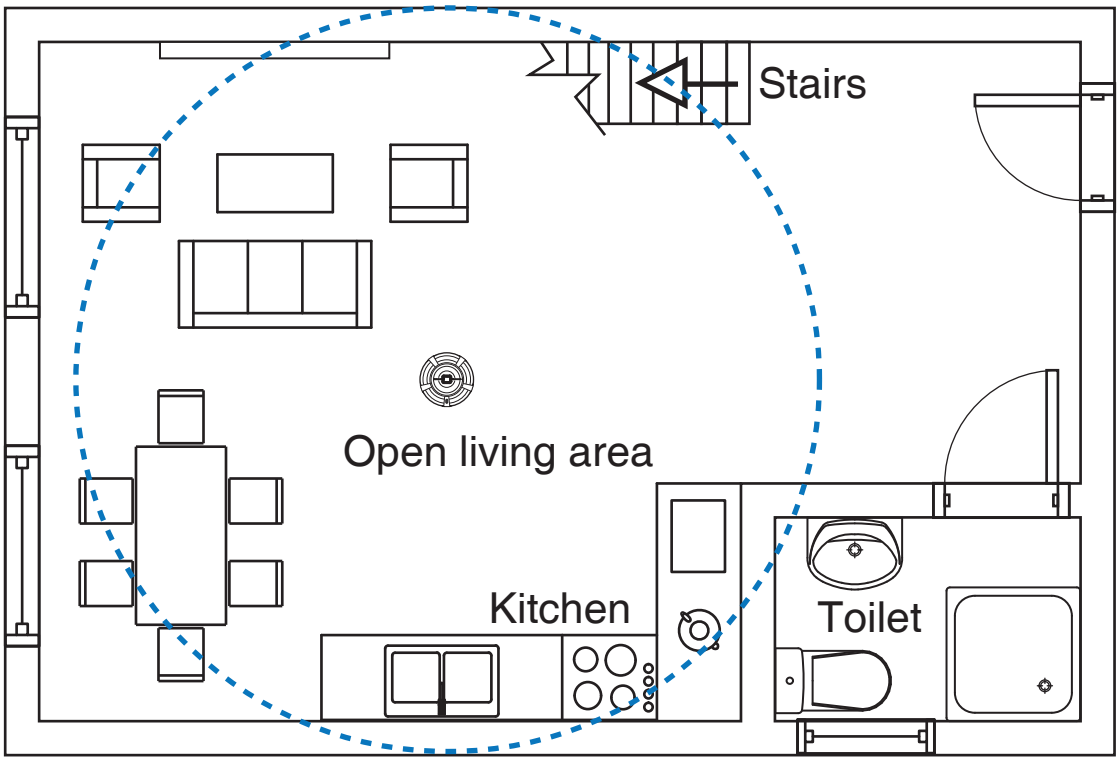


Open-plan spaces

applicable to:

LD3 systems | LD2 systems | LD1 systems

Open-plan accommodation where stairs are open to living / dining areas (or any other room where a fire could start) should be treated as a circulation area and be protected by a smoke detector.

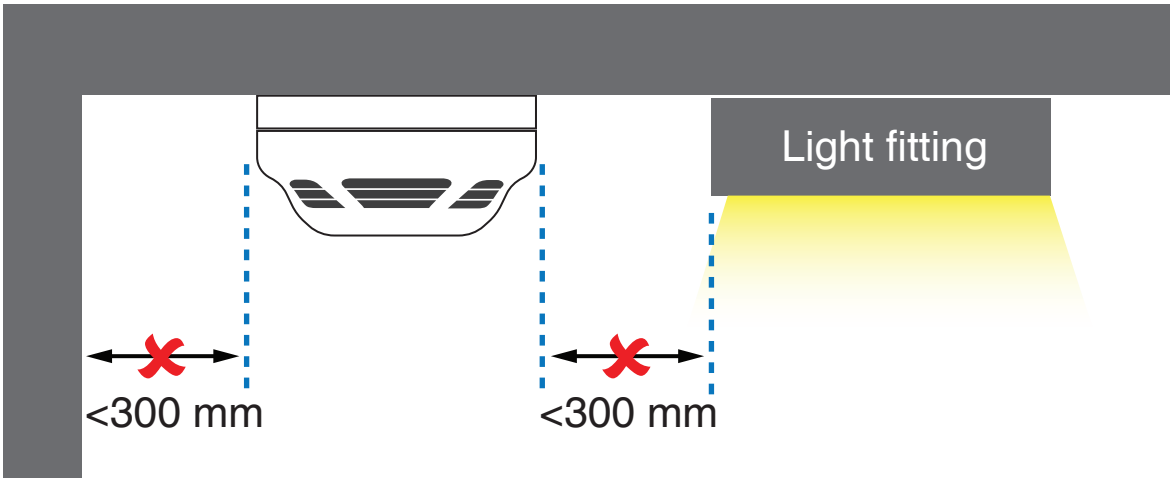


Detectors near walls and light fittings

applicable to:

LD3 systems LD2 systems LD1 systems

Never mount detectors less than 300 mm horizontally from any walls or light fittings, unless test evidence is available to prove the light fitting will not affect the detector's performance.

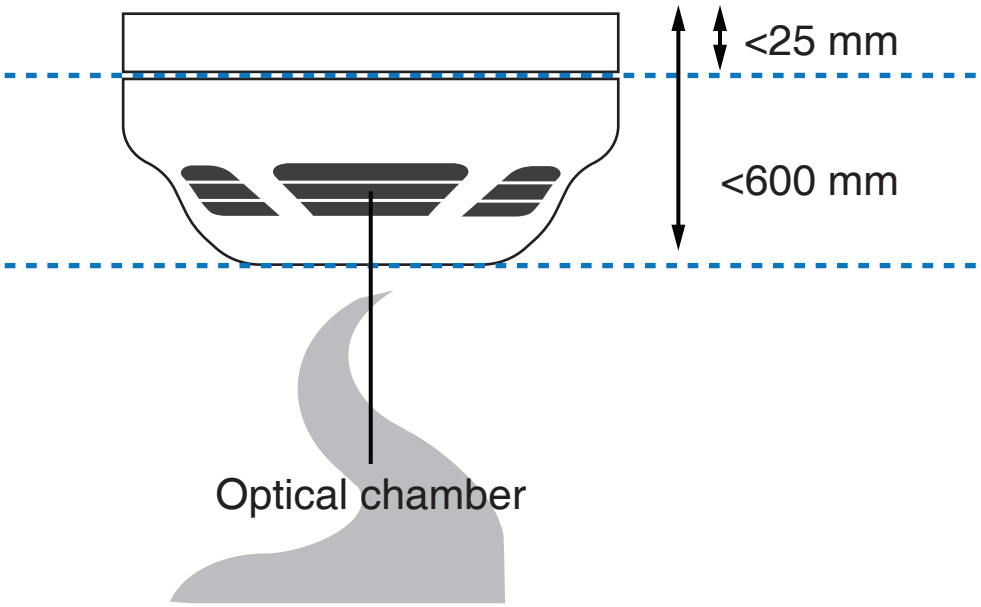


Smoke sensing element

applicable to:

LD3 systems LD2 systems LD1 systems

The smoke sensing element (optical smoke chamber) should be between 25 mm below the ceiling, and no greater than 600 mm below the ceiling.

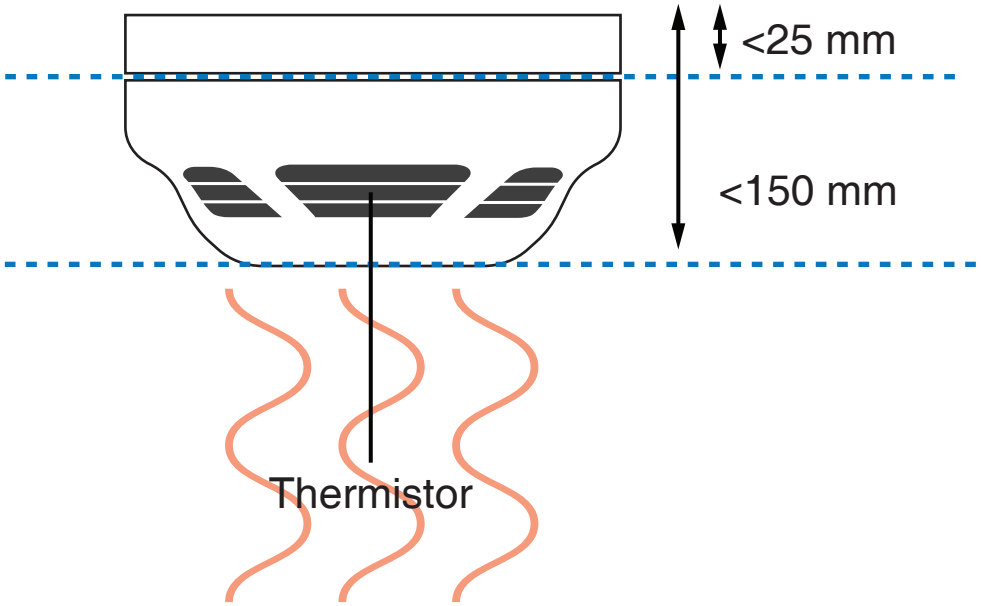


Heat sensing element

applicable to:

LD3 systems LD2 systems LD1 systems

The heat sensing element should not be less than 25 mm below the ceiling, and no greater than 150 mm below the ceiling.



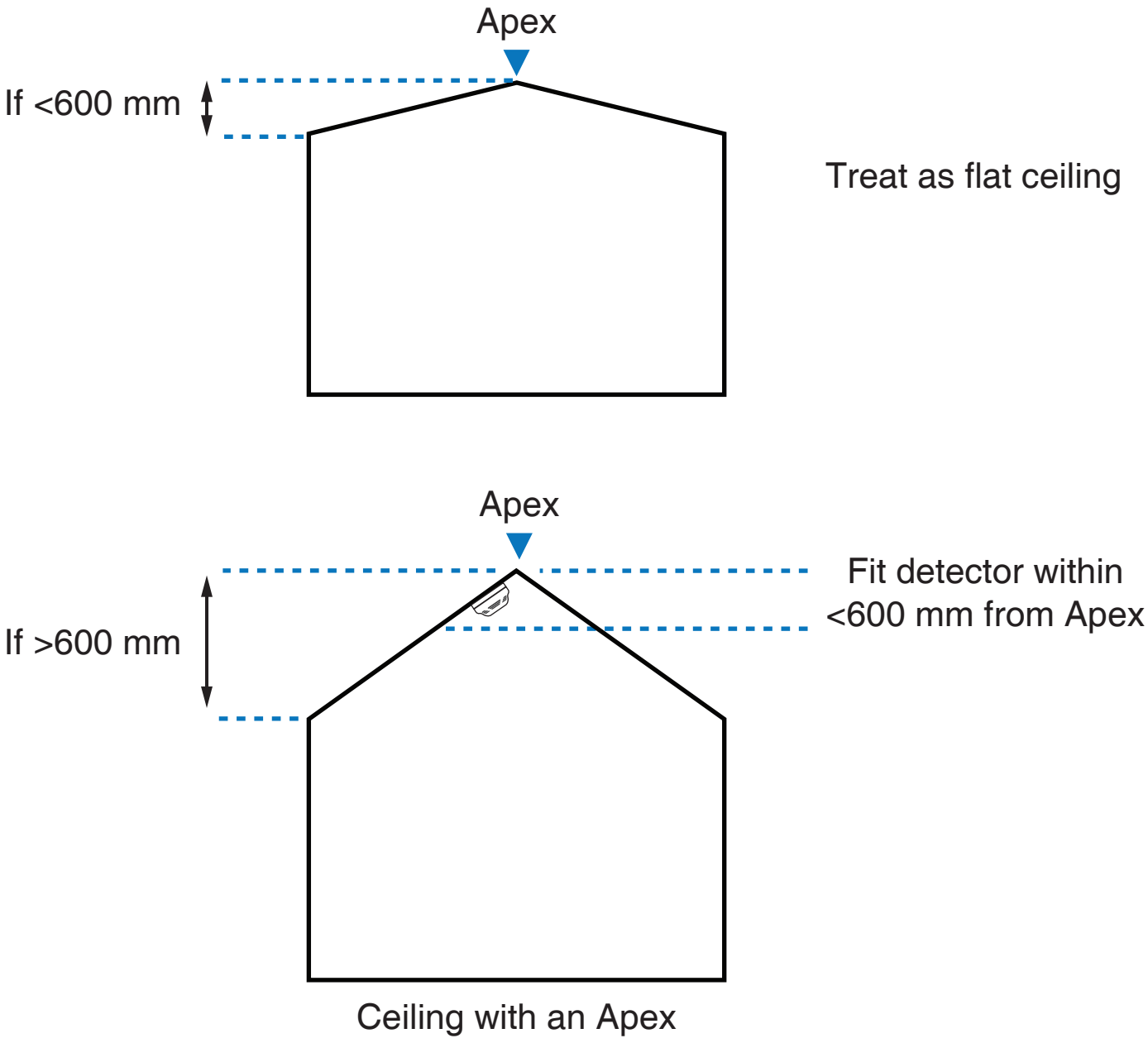
Detectors on apex ceilings

applicable to:

LD3 systems LD2 systems LD1 systems

As long as the height of the apex from the rest of the ceiling is less than 150 mm for heat detectors and 600 mm for smoke detectors, then these can be treated the same way as flat ceilings.

For higher apexes, a device should be installed at the highest point. The distance to adjacent devices can be increased by 1% per degree of angle of the roof, up to 25%.



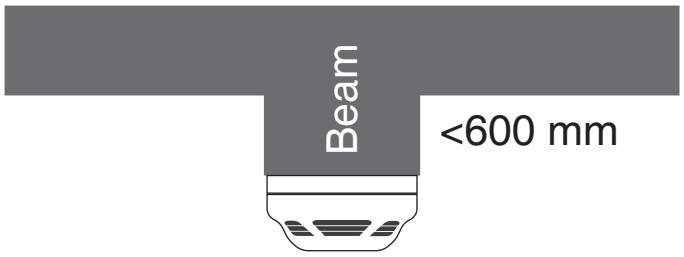
Ceiling with an Apex

Detectors near beams

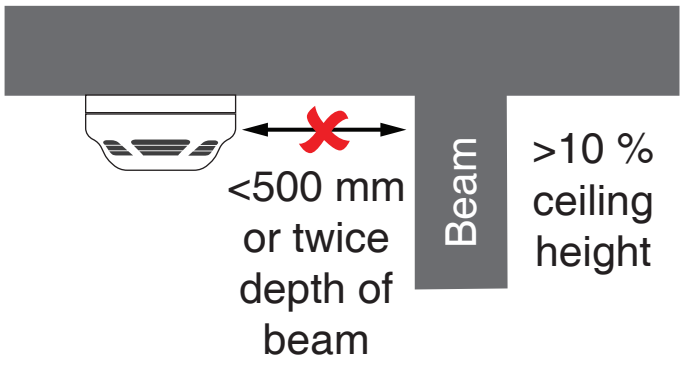
applicable to:

LD3 systems LD2 systems LD1 systems

Ceiling obstructions such as beams, should be treated as walls if deeper than 10% of the ceiling height. i.e. mounted on either side of the obstruction, or if a beam is less than 600 mm in depth, the detector should be installed on the under side of beam.



A detector should not be mounted within 500 mm of any obstruction or twice the depth of the beam, (whichever is less).



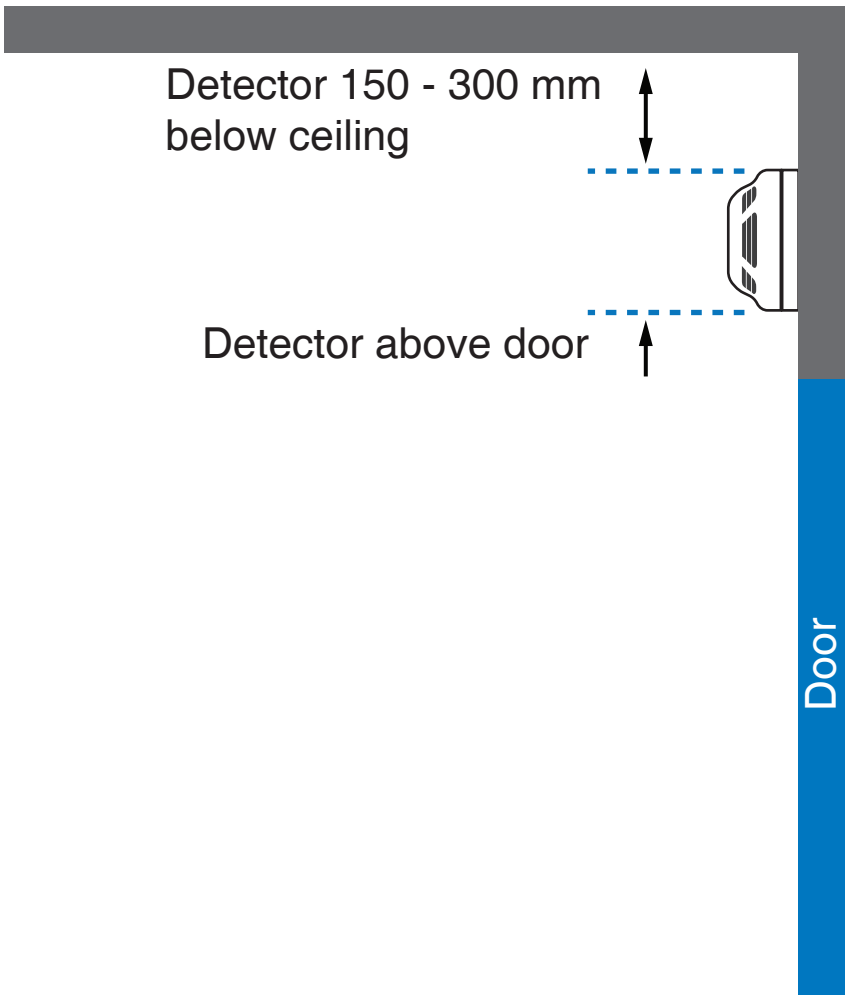
Smoke detector wall mounting

applicable to:

LD3 systems LD2 systems LD1 systems

Where ceiling mounting is impracticable, rooms and hallways less than 10 m in both length and breadth and not exceeding 50 m^2 in area, may be covered by wall mounted smoke detectors, provided that:

- the top of the smoke detector is between 150 mm & 300 mm below the ceiling.
- the bottom of the smoke detector is above the level of any door opening.



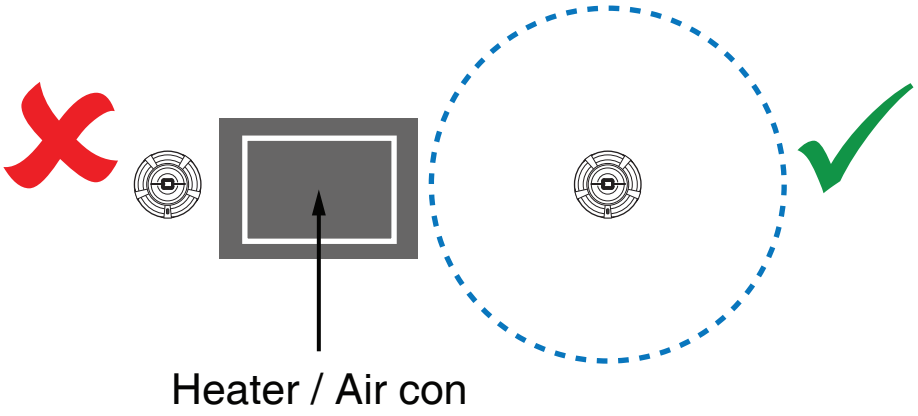
Further considerations

applicable to:

LD3 systems LD2 systems LD1 systems

- Detectors should be mounted in positions that are accessible for routine maintenance.

- Detectors should not be mounted directly above or adjacent to heaters or air-conditioning vents.



- DO NOT install heat detectors directly above cookers, stoves, ovens, or in areas of high humidity such as bathrooms, shower rooms, or near dish washers and washing machines.

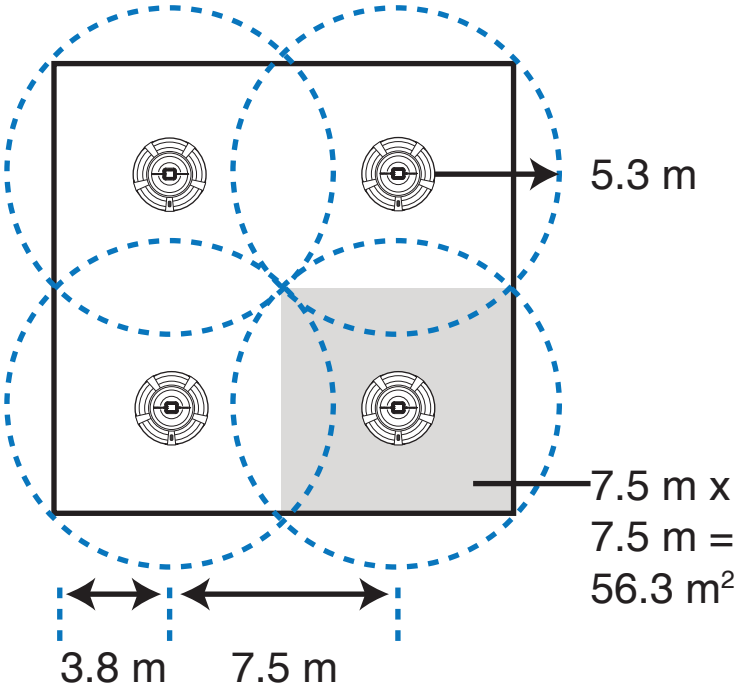
Detector spacing

applicable to:

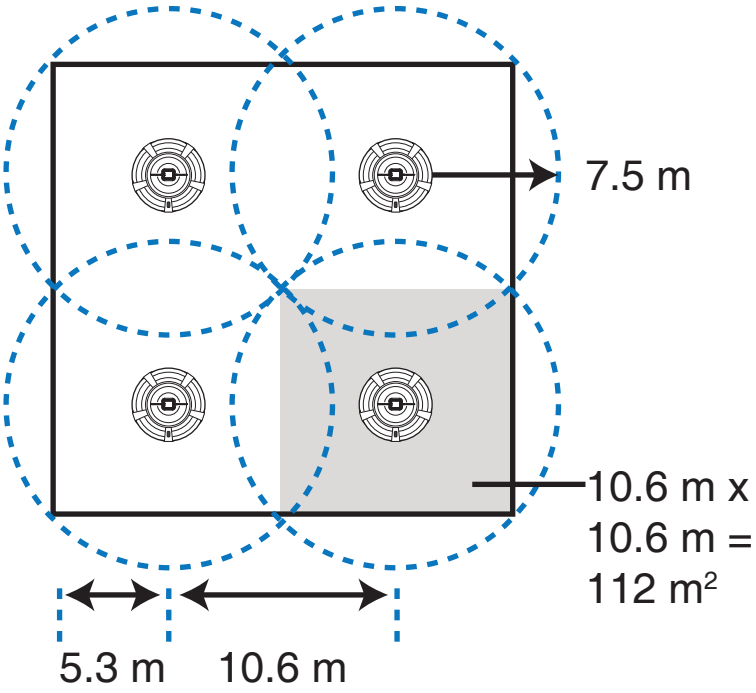
LD2 systems LD1 systems

Detectors within rooms should be sited such that no point is further than 7.5 m from the nearest smoke detector or, in rooms protected by heat detectors, no further than 5.3 m from the nearest heat detector

Smoke detector spacing:



Heat detector spacing:

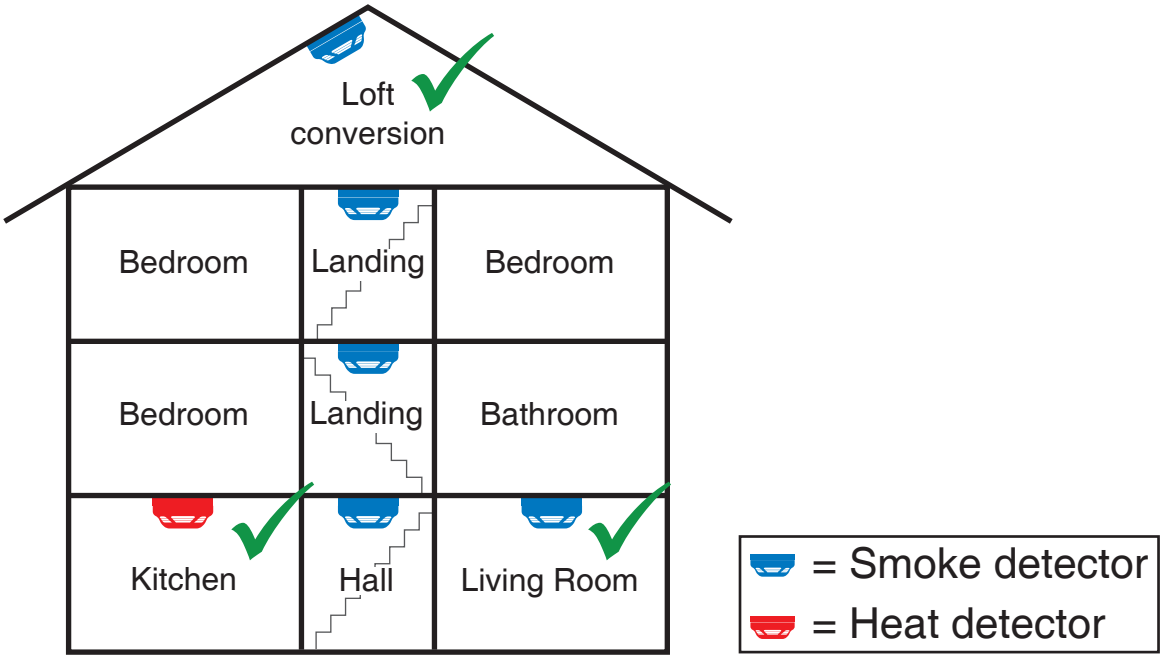


Additional LD2 system coverage

applicable to:

LD2 systems

Further smoke or heat detectors (as appropriate) should be sited in all additional rooms that protection is deemed necessary.



Additional LD1 system coverage

applicable to:

LD1 systems

Additional smoke or heat detectors (as appropriate) should be sited in all rooms and other areas of the premises with risk of fire, including lofts.