

TECHNICAL MEMORANDUM 018

Design and installation of fire safety provisions in dwelling houses with intended open plan arrangements

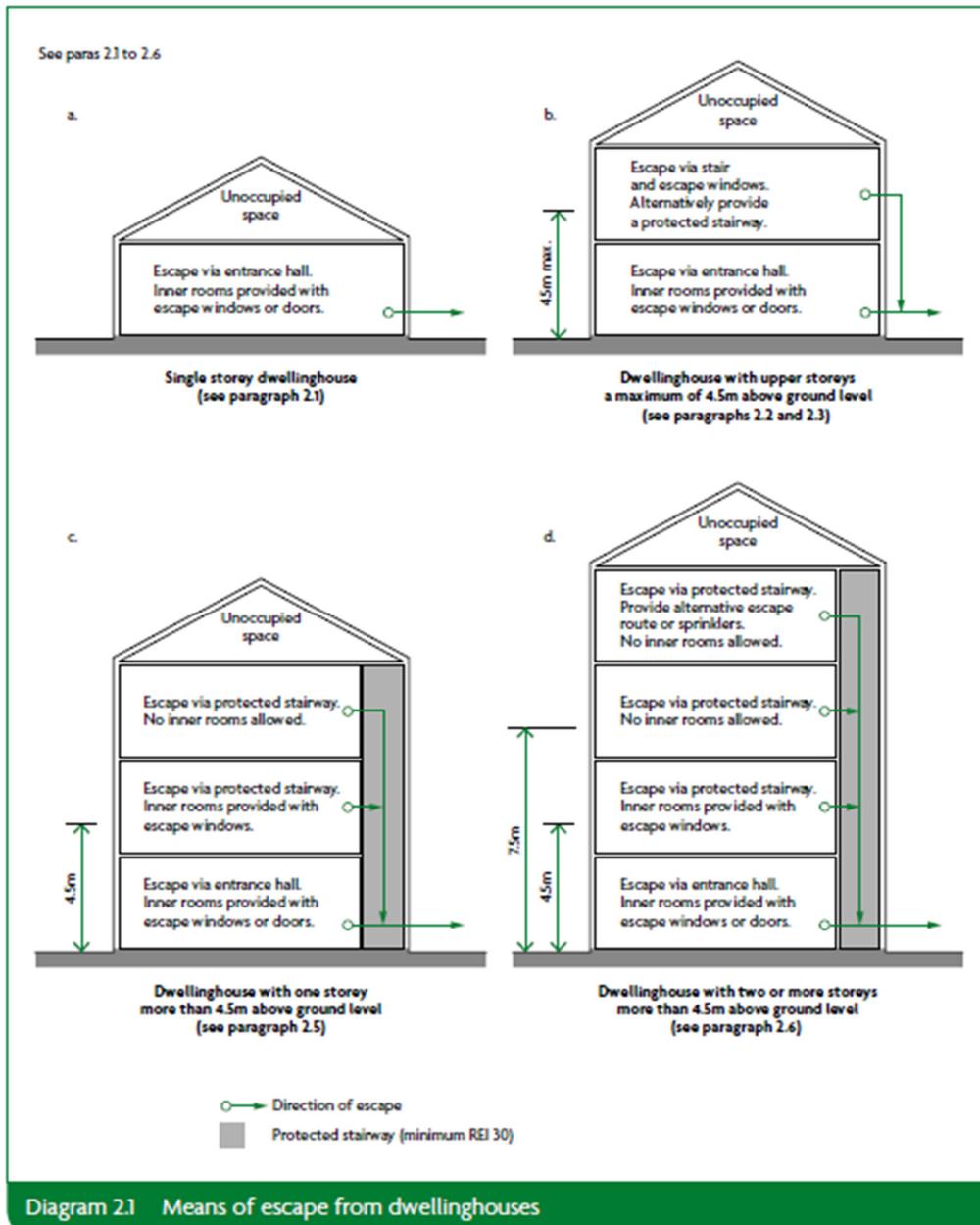
(Sprinklers, Water Mist, Fire Curtains, etc)

This guidance note only addresses basic provisions to safeguard life safety within dwelling houses. It does not address the provision of any passenger lifts or staircase design issues. Useful definitions have been footnoted at the end of this document.

Where open plan arrangements are intended within your dwelling house designs which may or may not have access rooms or inner rooms, which results in no protected means of escape routes, or any suitable alternative means of escape being provided which leads to a final place of safety, then you must provide compensatory measures that safeguards life-safety of all building occupiers.



Below we have attached an extract from the 2019 Approved Document Vol.1 – Fire safety, that gives the basic fire safety provisions that you should aim to achieve if you need to escape from a residential dwelling house in this case.



Extracted from the Approved Document Vol1, Fire safety Dwellings

You may need to appoint a Fire Safety Engineer to assess your proposals and to develop a fire strategy and design package for submission to building control and the fire authority to consider, especially where dwelling houses with floors above 7.5m are being altered.

The Institute of Fire Engineers or The Chartered Association of Building Engineers could be contacted to find a suitable designer who can assist you.

We would initially recommend that you install suitable fire doorsets and partitions that re-introduce physical fire resisting walls and doors that helps to achieve a protected escape route leading to a final place of safety for all building occupiers, as well as provides an easy way to both contain and to reduce the spread of smoke and fire within the building.

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To create a life safe internal building layout for escape in case of fire, the provision of various passive or active installations can be incorporated within your designs. Your professional designer should always be consulted so that compliant plans can be produced and submitted to our offices.

To be clear a “**passive**” installation relates to provisions that provide inherent fire safe construction characteristics by virtue of its composition safeguarding building occupiers e.g **non-combustible** (or limited combustibility) fire resisting walls, ceilings, linings, doors, glass components, or other fire resisting separating construction.

An “**active**” installation measure relates to equipment and facilities that primarily react to a life threatening event following its detection, such smoke or fire, providing a reaction that assists in either suppressing or extinguishing a fire, or even ventilating smoke build up, and re-establishing protective routes leading to a place of safety.

1. Passive measures – you can easily carry out :

You can merely re-introduce fire resisting corridors, and passageways, with associated fire rated doors that create a protected fire escape route leading to a final place of safety externally.

2. Active measures – where you must demonstrate compliance by using professional competent persons (Table 1) :

Installation type	Designs must meet these relevant British Standards
Residential water sprinklers	BS 9251 or BS EN 12845
Residential water mist systems	BS 8458
Automated fire curtains	BS 8524
Smoke ventilation provisions to	BS EN 12101
Enhanced early warning installations associated to the above active measures (Heat / smoke detectors)	BS 5839

Design of Sprinkler Installations :

Where required, sprinkler systems should be provided **throughout the building or separated part**, unless acting as a compensatory feature to address a specific risk. They should be designed and installed in accordance with the following. For residential buildings, the requirements of **BS 9251**, as indicated in the above table.

For non-residential buildings, or residential buildings outside the scope of **BS 9251**, the requirements of **BS EN 12845**, including the relevant hazard classification together with additional measures to improve system reliability and availability as described in Annex F of the standard.



Any sprinkler system installed to satisfy the requirements of Part B of the Building Regulations should be provided with additional measures to improve system reliability and availability and is therefore to be regarded as a life safety system.

However, there may be some circumstances in which additional measures to improve system reliability and availability specified in Annex F of **BS EN 12845** are inappropriate or unnecessary.

If the provisions in a building vary from those in the Approved Document Part B, sprinkler protection can also sometimes be used as a compensatory feature.

BS 9251 makes additional recommendations when sprinklers are proposed as compensatory features.

All designs relating to systems contained in standards mentioned in table 1 above must be carried out by appropriately qualified competent persons. Your designs must be submitted to our offices prior to installation.

Useful Definitions:

1. **Access room** - A room that the only escape route from an inner room passes through.
2. **Inner room** - Room from which escape is possible only by passing through another room (the access room).
3. **Means of escape** - Structural means that provide one or more safe routes for people to go, during a fire, from any point in the building to a place of safety.
4. **Protected entrance hall/landing** - A circulation area, consisting of a hall or space in a flat, that is enclosed with fire resisting construction other than an external wall of a building.
5. **Fire doorset** - A door or shutter which, together with its frame and furniture as installed in a building, is intended (when closed) to resist the spread of fire and/or gaseous products of combustion and meets specified performance criteria to those ends.
6. **Alternative escape routes** - Escape routes that are sufficiently separated by direction and space or by fire resisting construction to ensure that one is still available if the other is affected by fire.

NOTE: A second stair, balcony or flat roof which enables a person to reach a place free from danger from fire is considered an alternative escape route for the purposes of a dwellinghouse.

***Dwellinghouse** Does not include a flat or a building containing a flat.

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