

Building Control



LINCS BUILDING
CONSULTANCY

Guidance Note No. 7

Loft Conversions in
Existing Dwellings
Revised and updated to
Include the Requirements
of Part B Fire Safety

AIMS OF THE GUIDANCE NOTE

- This leaflet is intended to provide advice on loft conversions with one floor above 4.5m from finished ground level with no more than two habitable rooms providing that the new floor area remains under 50m² and for a dwelling with one staircase. The guidance given is not a statement of law, but is intended to help you understand the main requirements of the Building Regulations. For further information you should contact Lincs Building Consultancy (L.B.C).

Introduction

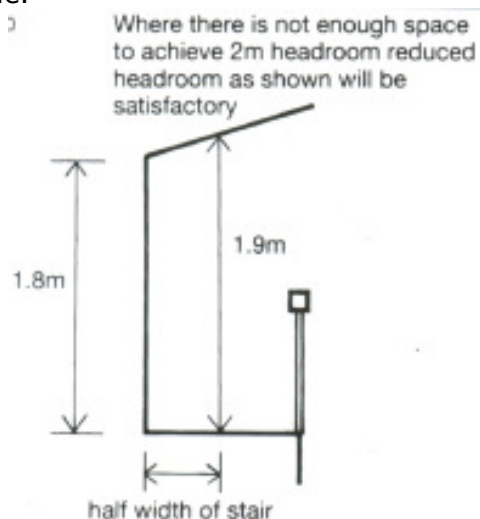
- Loft conversions can provide useful extra living space but can be difficult to design and build. Not all houses are suitable. Careful consideration of structural design, layout, fire performance, means of escape, ventilation, insulation and staircase provision is required.
- This guide covers the conversion of lofts within single occupancy two storey houses. It should not be applied to loft conversions within flats, maisonettes, houses in multiple occupancy, houses of more than two storeys or non-residential properties.

Structure

- Before starting any conversion, it is important to understand the functions of existing structural members and the possible consequences of their removal. If their function is uncertain, it may be advisable to provide temporary support. This is particularly important in the case of trussed rafters, which should not be modified under any circumstances without first consulting a structural engineer. Structural design must also take into account the need for headroom in the roof space and above the staircase, and fire regulation requirements.
- It will therefore be necessary to assess the existing structure to decide if or how it can be adapted and what will need to be relocated, e.g. how are the new floor and roof loadings to be accommodated? What is the capacity and condition of the supporting walls? How will the roof structure be supported? Specifically, give careful consideration to: the sizes and condition of all roof members and fixings, e.g. are there any signs of distress or any weakening due to decay and/or insect attack? The adequacy of the foundations, gable and supporting walls and floors for the additional loads, particularly around openings, and the ease of providing additional support; possible sound transmission through a new beam supported by a party wall; alternative gable support when cutting binders and purlins; the need for new collars; the loading and structural implications of the new staircase.
- Most importantly, consider the sequence of work, e.g. providing supports before any structural member is removed, access for new structural members, timing of the wiring, plumbing and heating installation. **For adaptation of your loft space structural calculations from a suitably qualified Structural Engineer will be required to be submitted to Building Control** in order to quantify the adaptations you intend to make to your roof.

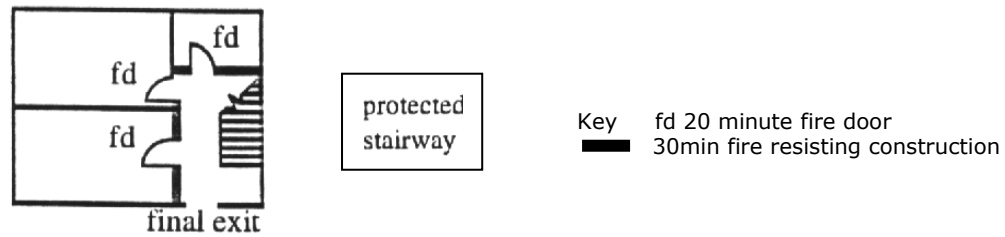
Stairs

- To gain access to a new room you will need to consider the type of stair you would like.
- The preferred style of stair is a traditional straight flight with landings top and bottom and equal sized steps within the limits of the Building Regulations (part K). However, spiral stairs and alternate tread stairs are permitted in certain circumstances.
- In all cases suitable guarding and handrails must be provided and good headroom maintained over the stairs at not less than 2m above the pitch of the flight, measured vertically. Where space is limited a reduced headroom of 1.9m measured centrally with 1.8m at the worst will, in certain circumstances, be acceptable.



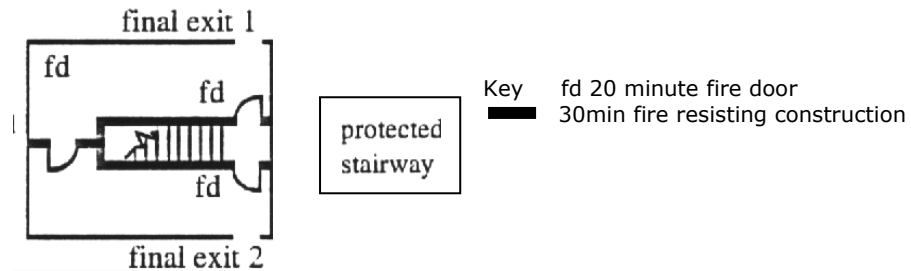
Escape in case of fire

- For loft conversions to a 2-story dwelling house the means of escape must be via by a protected stair. The staircase on the **ground floor** should discharge directly to a final exit, normally the front

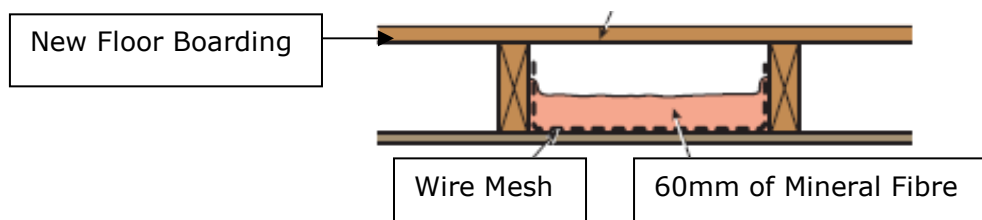


or back door.

- As an alternative the staircase on **the ground floor** can discharge at ground level into a protected lobby to which there are two possible final exits.



- If the ground floor is open plan, the ground floor should be separated from the upper floors by fire resisting construction and FD20 door/s positioned in such a way as to allow the occupants of the loft room to access a suitable escape window on the 1st floor in the event of a fire. It may therefore be necessary to either change or alter a suitable window/s to give a minimum opening/s of 0.33m², with any one side being no less than 450mm, and the cill no higher than 1.1m from finished floor level. It will also be necessary to enclose the kitchen with fire resisting construction and the whole of the ground floor will have to be fitted with a sprinkler system.
- It is also acceptable to separate the top floor from the lower storeys by fire resisting construction and provide an alternative escape route leading to its own final exit.
- Fire resisting doors of a standard of no less than 20 minutes should be provided to all doors serving rooms both existing and new throughout the protected route, (door closers and smoke seals are not deemed necessary).
- The walls and ceilings to the areas within the protected route (hall, landing and stairs) if not capable of achieving 30 minutes fire resistance should be upgraded to meet this standard.
- The walls of the new loft rooms adjoining the stairs must be of a full 30 minutes fire-resisting construction. Separating walls between dwellings need 60-minute fire resistance; those in the loft may have to be upgraded and any holes or gaps in existing walls filled in, up to the underside of the roof covering. Any dormer cheeks more than 1 m² in area within 1.0 m of a boundary to any other property must have 30-minute fire resistance, with not more than 2.0 m² of combustible material such as timber or PVC cladding.
- The new floor to the conversion should be upgraded to achieve 30 minutes fire resistance. Provided there is 9.5 mm plasterboard on the ceiling with gypsum plaster finish, the half-hour resistance can be achieved by laying mineral fibre between the joists before adding the floor. The layer must be not less than 60 mm thick and fixed to the joist sides. It is usual to support this layer on wire mesh laid between the joists. The new floor must be tongued and grooved minimum 25 mm nominal boarding or 15 mm plywood or chipboard and must extend into the eaves to the inside face of the external walls. Fixings should penetrate into the joist sides to a minimum depth of 20 mm. If the ceiling below is made of materials other than plasterboard, or the joists are exposed, other methods of providing additional protection will be necessary



Means of Warning and Detection

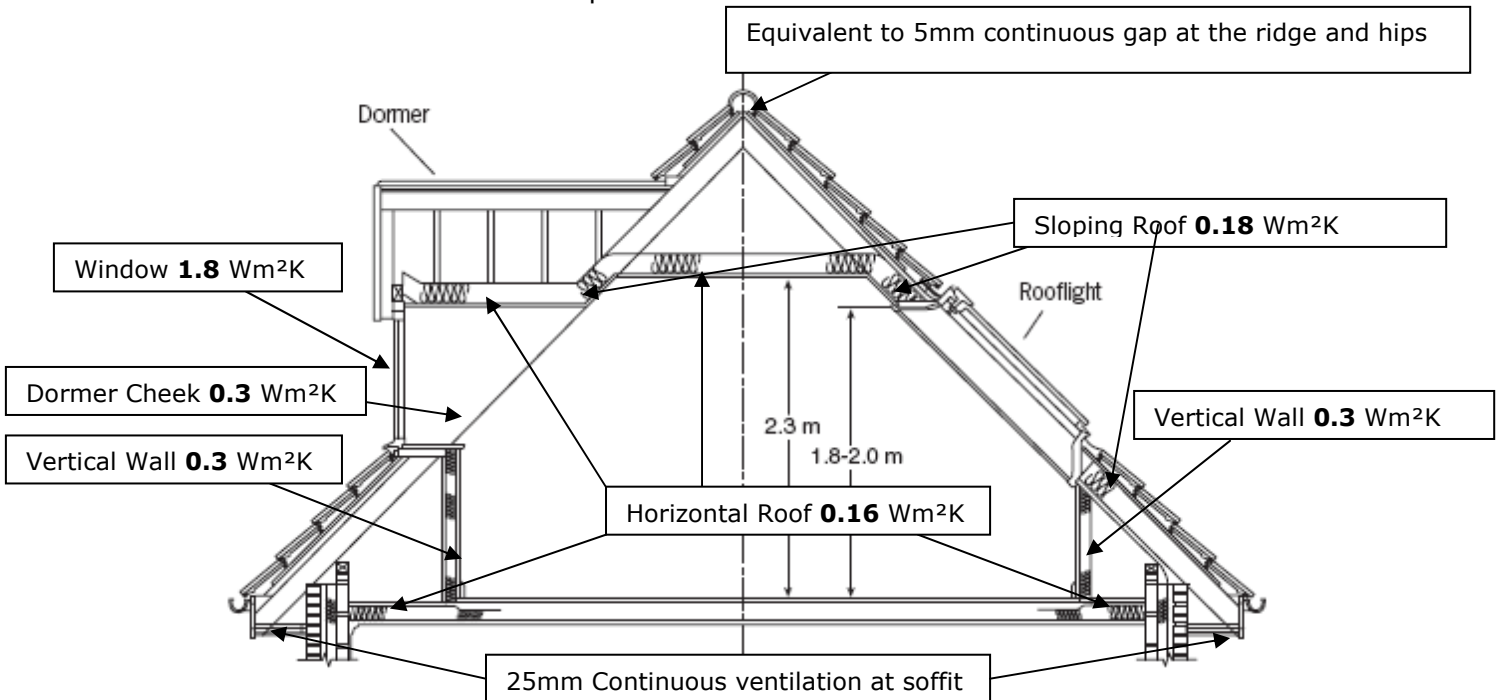
- In the early stages of a fire, the main hazard to the occupants is smoke and combustion gases. These very quickly spread from the source area into corridors and up stairwells. Therefore, early detection is the first priority and there must be at least one mains operated smoke alarm in the circulation spaces on each floor, each linked to all the others so that detection by any one triggers all of them. This will give the occupants the maximum amount of time possible to escape from the house. The smoke detection system should be installed in accordance with BS 5839 part 6 2004.

Insulation & Ventilation

For loft conversions the Building Regulations give minimum U-values that must be met, these U-values equate to the thermal efficiency of a specific element i.e. walls, floors, etc and are expressed in units of W/m^2K .

The added thermal insulation must not obstruct any existing and newly created air paths, which are required to reduce the possibility of condensation in the roof void. As an alternative to providing the minimum amounts of ventilation shown in the diagram below, a breathable roofing membrane can be used.

The minimum U-values and ventilation requirements are set out below.



NOTE, THE CEILING HEIGHTS INDICATED ON THE ABOVE DRAWING ARE GUIDANCE ONLY AND NOT A MINIMUM REQUIREMENT

- Typical Methods of construction capable of meeting the above insulation requirements are listed below, it is possible however to achieve the minimum insulation standards by other means: -
 - **Horizontal Roof** 250mm of mineral wool or 140mm Kingspan TP10
 - **Sloping Roof** 100mm Kingspan TP10
 - **Vertical wall, including Dormer Cheeks** 150mm Mineral wool, 70mm Kingspan Kooltherm K7 or 100mm Crown full fill cavity batt insulation.
 - **Window** a UPVC or timber window using a double glazed unit with Pilkinton K glass soft coat and the cavity between panes being no less than 16mm

Windows

- Windows are needed in a loft conversion to provide daylight, ventilation and a view out. In some cases, windows can be installed in the gable wall, but more usually they will have to be fitted into the roof as either dormer windows or roof slope windows. Slope windows in a 45° pitch generally provide more light than dormers with a similar glazed area, but they do not provide the increased floor space and headroom of dormers. The choice is often a compromise.
- Another factor in the choice is maintenance and cleaning of windows in second floor rooms: some designs and materials are easier to maintain than others.

Party walls

- In terraces and semi-detached houses, structural solutions may involve imposing loads on party walls. Before proceeding it is advisable to discuss the proposals with the owner/occupier of the adjoining property. Guidance can be found in the Party Wall Act 1996 and an explanatory leaflet is available.

Electrical Safety

- All electrical works are required to meet the requirements of Part P (Electrical Safety) and must be designed, installed, inspected and tested by a person competent to do so.
- Prior to completion L.B.C should be satisfied that Part P has been complied with. This will require an appropriate BS 7671 Electrical Installation Certificate to be issued for the work by a person competent to do so.

Planning Permission

- Planning permission and Building Regulation approval are not the same. Building Regulations will often apply when Planning Permission is unnecessary and vice-versa. You should always check with the Development Control Section of your Council to find out if your proposal needs Planning Permission.



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If you would like to receive this information in another language or in another format, such as large print, Braille or on an audio tape, please contact Administration at either of the offices shown above.

Please note that these guidance notes are for advice only and may not cover all situations. It is your responsibility to ensure that they are appropriate for use in your particular circumstances.