Loft Conversions
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This information sheet has been prepared to give a brief introduction to the Building Regulations and recommendations in the approved documents. The approved documents are only a guide to how compliance with the regulations can be achieved, but you may prefer to meet the requirements by some other way. However should you choose to follow the documents you are virtually assured of complying with the regulations.

Loft conversion in a two storey dwelling house

This information sheet limits its guidance to the provision of a new storey level (regardless of use) by the conversion of a loft space in a existing two storey dwelling.

Regulation A – Structure

The Building shall be constructed so that the combined dead, imposed and wind loads are sustained and transmitted by it to the ground.

General: It is important that a thorough survey of the existing building is undertaken before the layout is finalised. Often there are few walls other than the external walls, which can be relied upon to carry the additional loads imposed by the conversion. If the adequacy of the existing structure is not established at the design stage costly alterations may be needed during the construction works.

The existing walls, beams and lintels which are to be used to carry additional loads should be checked. This should include the type of construction and whether the walls have adequate foundations.

It is nearly always necessary to provide a new floor. Existing ceiling joists are rarely adequate to support normal floor loadings. In addition the floor construction will in turn be required to support partitions and the roof construction.

It will almost always be necessary to seek professional advice from a Structural Engineer or Surveyor regarding these matters as in most cases detailed structural calculations will be required to justify the design.
Regulation B1 – Means of Warning and Escape

Means of escape is the structural means where by (in the event of a fire) a safe route is provided for people to get from any point in a building to a place of safety without outside assistance.

Regulation B1 requires that a building shall be constructed so that the means of escape is capable of being used at all times.

FIRE ESCAPE:-
For existing two storey houses with an additional storey level added by the conversion of the loft space, the stairs must be protected by fire resisting walls and fire doors (FD20) which should either:
   a) enter into a hall that leads to an external door, or
   b) give access to at least two separate escape routes, each available to an external doors.

If you already have an open plan staircase it will therefore need to be enclosed. Alternatively, it may be possible to provide sprinkler protection to the open-plan area, in conjunction with a fire resisting partition and door, separating the ground floor from the upper storeys. This door should be so arranged to allow occupants of the loft room to access an escape window at first floor level in the event of a fire in the open-plan area. Any cooking facilities should be separated from the open-plan area with fire-resisting construction.

SMOKE ALARMS:
Where new habitable rooms are provided above the ground level a fire alarm and detection system in accordance with the relevant recommendations of BS EN 14604 should be installed. Smoke alarms should be provided in the circulation spaces between sleeping spaces and places where fires are most likely to start (e.g. kitchens and living rooms) to pick up the smoke at an early stages of a fire. There should be at least one smoke alarm on every storey and where kitchens are not separated from the stairway or circulation space by a door, there should be a compatible interlinked heat detector or heat alarm in the kitchen, in addition to what ever smoke alarms are needed in the circulation space (see also the provisions for sprinklers).

They should be wired separately to the dwellings main electricity supply or if the system has a secondary power supply such as a battery they may be connected to a regularly used lighting circuit.
Regulation B3 – Internal Fire Spread (Structure)

In altering an existing two storey house, the provisions are that both old and new floors have a full 30mins fire resistance. However, provided the following conditions are satisfied, namely:
   a. Only one storey is being added;
   b. The new storey contains no more than 2 habitable rooms, and;
   c. The total area of the new storey does not exceed 50m²;
then the existing floor may have a modified 30mins standard in places where it only separates rooms (not stairways or landings).

Regulation B4 – External Fire Spread

If you provide a dormer to your loft conversion it may need additional fire protection if the side wall of the dormer is within 1m of the boundary. The dormer cheek will require 30 minutes fire resistance from both sides

*From April 2007 the guidance in the Approved Document Part B-Fire Safety recommends provision of fire detection and alarm systems and that escape stairs should be protected by fire resisting construction and doors (which need not be fitted with self-closing devices). There is no-longer a reliance on suitably positioned egress windows from 2nd floor loft rooms as alternative means of escape.*
Regulation C – Roof Ventilation

Adequate ventilation shall be made to prevent excessive condensation in a roof or in a void above an insulated ceiling.

Ventilation is required to the roof void above the insulation unless it is a warm roof construction as described in the section dealing with Thermal Insulation.

Diagram 5 Ventilating roof voids

Where the insulation is provided immediately above ceilings or behind stud walls enclosing a loft room or between rafters where the ceiling follows the line of the rafters or in a flat area of roof, it is necessary to provide a space of at least 50mm above the insulation (between it and the roof covering) to allow cross ventilation of the void to prevent excessive condensation. To provide this ventilation a 25mm strip, with a vermin screen, running the full length of the eaves is required. In addition, on pitched roofs, a continuous ventilation strip of at least 5mm should be provided at the ridge. (See Diagram 5). At both eaves and ridge level a series of independent ventilators may be used provided they are evenly distributed and provide the same area of ventilation as the continuous strip.
Regulation E - Sound

Loft conversions will be affected by Regulation E2, which requires sound insulation within the internal walls and floors of buildings. The guidance relating to this part of the Regulations is contained in Section 5 of the Approved Document. In a typical domestic situation stud walls around bedrooms and bathrooms need 75mm studwork with either two layers of plasterboard on each side or 25mm of sound insulation incorporated within the wall.

Separating timber floors will require to achieve reasonable protection, the new floor should be covered with floor boarding which achieves 15kg/m² (i.e. 21mm tongued and grooved) and this should extend over the entire floor and remaining ceiling joists to the eaves. This boarding should also be provided with screw fixings. 100mm mineral wool insulation on chicken wire should be provided between the new floor joists, insulation to be 10kg/m³. (see diagrams below).

In attached properties the existing separating walls may also require upgrading. Whilst there is no requirement for these walls to be brought up to new build standards, reasonable provision should be made to improve their sound resistance.
**Regulation F - Ventilation**

There shall be adequate means of ventilation provided for people in the building.

Habitable rooms need to have windows with openings equivalent to 1/20th of the floor area with some part of that opening at least 1.75m above the floor. In addition a controllable trickle ventilator with a minimum equivalent area of 5000mm².

If one of the rooms is a bathroom, with or without a WC, a mechanical form of ventilation will be required. A bathroom will need a system which will extract at least 15 litres per second and be capable of being operated intermittently and 2500mm² equivalent area of background ventilation.

A WC compartment or a bathroom containing a WC needs either an opening window as described previously or mechanical ventilation capable of intermittent operation providing 6l/s.
Regulation K - Staircases

Stairs, ladders and ramps must offer safety to users moving between levels of the building.

The new stair may be located as a continuation of the existing stairway or in an enclosure separate from the stairway but which opens into it (i.e. a small bedroom or part of a larger room.) (See Diagram 3.)

The steps should have a maximum rise of 220mm and a minimum going of 220mm, and there should be no gap large enough to allow a 100mm diameter sphere to pass through it.

The clear headroom of a staircase should be at least 2m vertically above the pitch line (an inclined line joining the nosing's of the steps). There is an exception to this when converting lofts, that in certain cases where the staircase runs at right angles to the roof a sloping headroom with a lower height of 1.8m can be accepted. See Diagram 4.

There should be a landing at the top and bottom of the staircase the depth of which should be no less than the width of the stairs. A door may open across the landing at the bottom of the stair but not within 400mm of the bottom step.

Tapered tread stairs may be used providing a minimum tread of 50mm is provided at the narrow end and the rise and going dimensions are as for a straight flight stair when measured at the centre of the tread.

Handrails and balustrading should be provided to stairs and landings at 900mm above the pitch line and landing floor level. There should be no openings in the balustrading that would allow a 100mm diameter sphere to pass through and they should not be designed so as to be readily climbed by children.

Alternating tread stairs (space saver stairs) may be used as access to a loft conversion which provides only one habitable room, but only where there is not enough space to accommodate a traditional stair.

NB: Where there is any doubt as to whether there is enough space it should be discussed with the Building Control Surveyor.
Regulation L – Thermal Insulation

Reasonable provision shall be made for the conversion of fuel and power.

General: When a room or rooms are provided in a loft space, the new rooms must be adequately insulated to limit heat loss. The Approved Document refers to insulation standards as “U values”. The “U values” for the roof and wall construction of a loft conversion are as follows. (NB: A roof with a pitch of 70º or more is considered a wall for insulation purposes).

1. A flat roof (dormer) - 0.18 W/m²K
2. Pitch roof with insulation at ceiling level - 0.16 W/m²K
3. Where the ceiling is formed by lining the underside of the rafters 0.18 W/m²K.

There are many ways of achieving this by enclosing the roof/room with materials such as glass fibre quilt, mineral wool, polyurethane or polyisocyanurate (PIR) board of adequate thickness.

There are two forms of roof construction:

(a) A “Cold roof” where the insulation is provided so as to leave a void above the insulation which is cross ventilated at eaves and/or ridge level to avoid as far as possible the effects of condensation. However when insulating between the existing rafters a minimum air gap of 50mm has to be maintained. This usually means that the ceiling level has to be dropped in order that the insulating material does not fill the void between the plasterboard ceiling and the felt and tiles above.

(b) A “Warm roof” construction where the insulation is provided immediately under the roof covering with a vapour barrier. Where this method is used there are no voids above the insulation therefore no ventilation is required. It is almost impossible however to use a warm roof construction on the existing tiled roof unless they are removed and the roof retiled.

Glazing

The windows and roof lights should achieve a U value of 1.6 W/m²K. Certification should be provided by the manufacturer.

For further details of thermal insulation requirements please ring Building Control.

Regulation P Electrical Safety

Some electrical work is ‘notifiable’ under the Building Regulations. If you use a registered ‘competent’ installer for the electrical work, the registration scheme operator will send you a compliance certificate when work is complete. If you use an unregistered installer, the Building Control Service will inspect the work. We must be informed of the route you wish to follow before you commence work.

We have separate information sheets which explain this further if required.

BC_10 - Part P Home Electrical Safety
and
BC_10A - Part P Home Electrical Safety
Where can I find out more?

Steve Moore  
Head of Building Control  
020 8313 4315

Technical Clerks/Administration  
020 8461 7860
Out of hours answerphone  
020 8313 4313
Fax number  
020 8313 4604
Address  
Building Control,  
Civic Centre, Stockwell Close  
Bromley, BR1 3UH.

E:mail  
buildingcontrol@bromley.gov.uk

Websites  
London Borough of Bromley  
www.bromley.gov.uk  
Local Authority Building Control  
www.labc.uk.com

Getting it Right

What to do if things go wrong!

If there is a problem about a building regulation application that you have submitted, please get in touch and we will try to sort it out as quickly as possible.

There is further advice about what to do if you have a problem or a complaint in the leaflet Getting it Right which is available at Planning and Engineering Reception in the Civic Centre, or write or telephone us at the Civic Centre.

Remember, we value your comments