



DESIGN MASTERCLASS:

Converting Loft Spaces

20 GREAT IDEAS

Experienced renovator and property developer Michael Holmes offers innovative design tips and practical advice

Using the roof space to provide additional accommodation makes good sense. On a new dwelling it will maximise use of the built volume and bring down the average cost per square metre. In an existing home, converting the loft is often the most cost-effective way to add space.

There are two main options when it comes to design: to commission an architectural designer to produce drawings which can then be put out to builders on a competitive tender basis, or to hand the whole project over to a design and build contractor offering a one-stop service. Both will deal with planning permission, if required, and Building Regulations approval.

1 Think Ahead

Designing a roof with future conversion in mind will allow for the expansion of living space should demand arise. Specifying either a cut roof or attic trusses instead of 'fink' trusses will add £1,500-2,000 to the average build cost but hugely simplify the conversion process. In addition, including a plumbing and heating manifold in the roof space, siting soil vent (SVP) pipes where they might be needed, and allowing space on the consumer unit for power, lighting and other circuits, will bring down the cost of a conversion. Finally, opt for a 'warm roof' design and consider the addition of a full staircase.

This self-contained loft apartment, designed by Brooke Fieldhouse Associates (01723 871388), was created within a 1970s bungalow, so the elderly owner's adult son could move back home to provide support. The distinctive curved ceiling has been achieved with tongue-and-groove boards. Planning permission was not required as rooflights were inserted instead of dormers

2 Add Glazing to Gable Walls

COMPLEMENT ROOFLIGHTS WITH A GLAZED GABLE TO MAXIMISE LIGHT

The opportunity to introduce windows in gable walls is often overlooked when designing a loft conversion, yet it is a great way to introduce light. As with any window the sill must be 800mm above floor level.

A gable window can be expanded so that the whole triangular gable wall is glazed, with a structural frame of timber and steel reinforcement where necessary. This can really add wow factor to a loft room.

Glazing a gable wall is unlikely to be an issue on a forward or rear-facing gable and may be classed as Permitted Development (PD). New windows in a side elevation will always need planning permission unless they are obscure-glazed with any opening part at least 1.7m above floor level.

This Nottingham loft conversion scheme by NH Architecture (01246 860547) added a new master bedroom with en suite. Much of the gable wall has been glazed and opens out, with a Juliet balcony offering protection.



JULIET BALCONY

Where it is not possible to add a roof terrace or balcony that you can step out onto, the solution is to add a balustrade just beyond the doors (which are designed to open inwards). On a traditional building this is often in black-painted wrought iron, but on a more contemporary building a glass balustrade is discreet and simple.



6 SOUND-PROOF IT

ACOUSTIC SEPARATION IS CRITICAL

There is a minimum soundproofing requirement, but this is inadequate where the use of the attic room is likely to be noisy, such as a playroom. If the floor is to have a hard surface, such as a wooden floor, an acoustic floor is essential.

Sound can travel between attic rooms and the floor below by two means: airborne and impact transfer. The first can be reduced by making sure the structure is airtight, taping insulation materials together, and using sealant around the floor edges, etc. The voids between the floor joists can be filled with high-density acoustic insulation, although this cannot be used around recessed spotlights. Using high-density fibre-reinforced plasterboard (e.g. Fermacell) can also reduce sound transfer.

Impact transfer can be reduced by using caulking to separate the structural floor joists from the wooden floorboards and ensuring there are no fixings – screws or nails – between the flooring and the joists.

3 Go Hip to Gable

Where the roof of a property is hipped, e.g. sloping on all four sides (three on a semi-detached house), there may not be sufficient roof volume with full headroom to make conversion viable. However, the roof can often be altered from a hip to gable on one or both sides, forming a gable pitched roof with headroom along the full length of the roof.

A hip to gable conversion may not require planning permission providing the design complies with the criteria for Permitted Development (PD). This allows an increase of 50m³ to the house (40m³ on a terraced house), providing no part of the roof is higher than the original.

It is always worth checking with the local authority as to whether or not planning permission is required. It may be possible to undertake work using PD rights that would not comply with local planning policy were permission required.

4 INSTALL A SPACE-SAVING STAIRCASE

INTRODUCE WINDERS AND KITES TO SAVE SPACE, OR USE SPIRAL STAIRS



Slimline stairs on a loft conversion by Econoloft (econoloft.co.uk)

The ideal position for the staircase in a two storey house is directly above the staircase below, running in the same direction. Where there is insufficient headroom – minimum 1.9m at the centre and 1.8m at the string – a carefully positioned dormer window or rooflight can make all the difference. However, where this is not possible or practical, the most space-efficient staircase configuration should be found.

The maximum pitch under Building Regulations is 42° and although there is no minimum width for a staircase, less than 600mm is unlikely to prove practical. Landings to change direction take up space, but these can be avoided by using winders and kites (triangular treads) so that stairs can turn at the same time as rising; a spiral staircase is made up entirely of winders. For a single-room loft conversion the Building Regulations will accept a space-saver staircase, which has alternating treads.

This luxurious smart loft conversion is kitted out with a Control4 Smart home system, enabling control of the ceiling speakers, blinds, CCTV and front door entry. The en suite features two waterproof 26-inch HD televisions, ceiling speakers and mood lighting



7 The Ultimate Master Suite

CREATE A PERSONAL HAVEN ON THE TOP FLOOR

Away from activity in the rest of the house, the attic level can be the perfect place to create a master bedroom suite. "I want to be able to stay up there and relax, reflect and clear my mind for days without anyone bothering me," were the instructions given by a company director who works long hours to London-based design and build specialist Ashville Inc.

Ashville Inc interpreted the brief by creating a space in which their client could rest, relax, work and entertain. A new master suite was created by remodelling the roofspace, doubling the floor area and increasing the headroom. As well as the bedroom area, there is a living space, work area, walk-in wardrobes and a beautiful en suite bathroom.

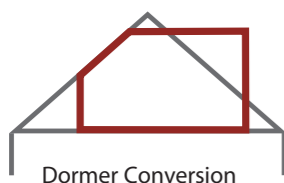
Features include underfloor heating beneath the wooden flooring, together with air conditioning to give total climate control. The bed is designed to look as if it floats by concealing the legs out of view, and is underlit by subtle LED lighting. The multi-circuit lighting scheme is controlled on a Control4 Smart home system, which also controls other areas of the home via 7-inch touch-screen wall panel displays.

Designed with all of the luxuries of a spa, the bathroom features a steam room, Jacuzzi bath and hi-tech toilet.

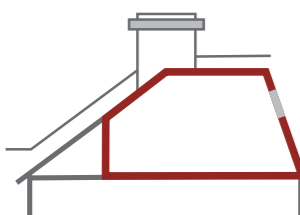
TYPES OF CONVERSION



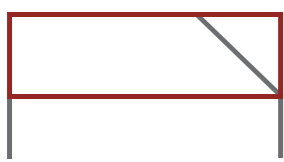
Rooflight Conversion



Dormer Conversion



Mansard Conversion



Hip-to-Gable Conversion



A bank of large Velux rooflights create an impressive feature in this loft conversion, opening outwards to form Juliet balconies (velux.co.uk)

10 Install Feature Rooflights...

MAXIMISE GLAZING TO GET THE MOST OUT OF YOUR LOFT SPACE

The standard solutions for bringing light into an attic room are the rooflight and the dormer window, but it's really worth considering feature windows, which can bring in more light and create a sense of space, as well making the most of any views.

A bank of rooflights arranged together, typically in a symmetrical pattern, look impressive and be achieved using both conventional and conservation rooflights.

Other options include ridelights – a bank of glazing running along one or both sides of the ridge – and glazed roof lanterns.

Where the loft has a flat roof there are many options for introducing light, including domes and pyramids, or roof lanterns with arched, gabled or hip gabled profile.

The frameless flat rooflight, by Glazing

Vision (BELOW), is a good option for a flat roof, especially above a stair landing. Rooflights can be fixed or hinged for access to the flat roof. When closed, no part of the frame is visible, except on very large rooflights which are made from two or more units supported by a steel mullion, although even this can be replaced by structural glass beam.



Walk-on rooflights from Glazing Vision (glazing-vision.co.uk)

11 Or Be More Conservative

ON PERIOD HOMES AND BARN CONVERSIONS, A DISCREET OPTION MAY BE BEST

The conservation rooflight is a modern reproduction of Victorian cast iron single-glazed rooflights commonly used in agricultural and industrial buildings during the 19th century.

Designed with a thin, low-profile frame, the conservation rooflight – typically powder coated in black – sits flush with the plane of the roof and is visually less obtrusive than a conventional rooflight.

In Conservation Areas and on listed buildings, the local planning authority is likely to be far more receptive to proposals for additional openings in the roof if conservation rooflights are used. In many instances they are a requirement of planning consent. They are also favoured by the National Trust, English Heritage and many conservation designers for all period properties.

Conservation rooflights are also identifiable because larger window openings are divided vertically by glazing bars in

sections to ensure that each pane is always taller than it is wide. As well as creating more pleasing proportions, this reflects the limitations on the size of glazed panels in the 19th century before the development of float glass.

Modern conservation rooflights are made from steel and have a thermally broken frame and low-E double-glazed units, to improve energy efficiency.

BELOW: This conservation rooflight from Lumen creates a low-impact opening (lumenrooflight.co.uk)



8 Mansards Work on Terraces

MANY LOCAL AUTHORITIES PREFER THIS STEEPLY PITCHED SOLUTION

A mansard roof – named after 17th century French architect François Mansart – is a roof that has two slopes, with the lower slope being so steeply pitched as to almost be vertical and the upper being very low pitch, often down to just 5-8°. Spanning from gable to gable, or from hip to hip on a four-sided mansard roof, it maximises the volume of interior space within the attic without requiring masonry. The steeply pitched slope is typically punctuated with dormer windows or glazed doors.

The design works particularly well on terraced houses where the rear section of the roof can be removed and replaced with

a mansard structure, creating space with full headroom over a significant proportion of the property, without raising the ridge height. Usually rooflights are added in the front plane of the roof, but in some situations it may be possible to alter the roof to a mansard design at the front, too, effectively creating a whole additional storey on the building.

Many local authorities favour mansard roof conversions, as having a slate-clad roof extending from party wall to party wall of a terraced house is considered far less visually obtrusive than a large box dormer set within party walls.



PHOTOGRAPHY: Aspire Extensions: 0845 872 5500 (LEFT); Velux (ABOVE); Glazing Vision (ABOVE RIGHT); Lumen (RIGHT)

9 Bring in Light

If budget is limited, the least expensive type of loft conversion design is a 'rooflight' conversion, also known as a 'Velux' conversion after the well-known roof window manufacturer.

This type of conversion only works where there is already a large amount of loft space with full headroom, as the roof itself remains unaltered, other than by cutting in rooflights between the rafters.

As no volume is added, planning permission is not required in England and Wales providing the work constitutes Permitted Development (flats, listed properties and properties where Permitted Development rights are restricted or removed will still need consent).

12 When it's a 'Fink' Roof

LIGHTWEIGHT TELESCOPIC BEAMS WILL SIMPLIFY FINK ROOF CONVERSIONS

Many houses built since the 1960s have engineered 'fink' trusses made up from a web of thin timbers with W-shaped struts, held together by metal 'gangnail' plates. This type of loft space is often considered unsuitable for conversion, as the structural trusses

"Steel beams are awkward to insert"

supporting the rafters have to be completely replaced to create a useful clear space and this can prove uneconomic.

With property values exceeding conversion costs, however, this kind of conversion is becoming increasingly common. One option

is to strip the roof and replace the entire structure with a new roof, possibly with a steeper pitch and different configuration to create more volume, but this is expensive. A more cost-effective solution is to insert a new structure to support the rafters, stripping only a small part of the roof, and to then cut away the supporting timbers to create a clear space. This can be achieved using steel beams, but these are awkward to insert, typically requiring removal of part of the gable walls. Sectional steel beams can reduce the workload, but are still likely to need to be craned into place.

The development of lightweight telescopic aluminium beams – the award-winning Telebeam (BELOW) – has made the process of converting a lightweight 'fink' truss roof simpler and faster.



Telebeam is an innovative solution for fink truss roofs, using lightweight telescopic aluminium beams to create new roof support (telebeam.co.uk)

13 WRAP IT AROUND

THIS INNOVATIVE SOLUTION SHOULD FALL UNDER PD

On a building with a hipped roof, which slopes on all four sides (three in the case of a semi), the scale of a conventional dormer window is usually limited on the rear and side elevations. An innovative design solution that creates additional volume in the loft space with full head height is the wraparound dormer. Providing the volume does not exceed that allowed under the rules for Permitted Development, it should not need planning permission.



This loft kitchen is illuminated in the day by rooflights and the addition of a dormer, which has created a balcony

14 Think Fire

Domestic sprinkler systems can enable a loft conversion to meet fire safety requirements, even where the stairs discharge into an open plan ground floor layout. Without a sprinkler system, an open plan layout has to be adapted to create an enclosed fire-protected escape route leading from the attic down to a final escape door in the hallway, or to two escape routes each leading to final exits and separated by fire-resisting construction and self-closing fire doors.

With a sprinkler system it is possible to negotiate with Building Control and avoid having to upgrade existing doors to fire doors, or to upgrade the structure and stairway to 30-minute rating. However, the open ground floor must still be separated from the attic storey at first floor landing level. This usually means subdividing the first floor landing so that there is a protected route from the attic to at least one habitable first floor room. Adding an automated smoke vent, such as the A-Vent developed by Nationwide Sprinklers (nationwidefiresprinklers.co.uk), will overcome this requirement

PHOTOGRAPHY: Telebeam (ABOVE LEFT); Ashville Inc (LEFT); James Robinson (ABOVE); LoftPOD (RIGHT)

15 Self-Contained Apartments

A LARGE LOFT CAN BE THE IDEAL SPACE FOR AN INDEPENDENT ANNEXE

Consider adding a granny annexe or home for older children in the loft space. Planning permission is not usually required to convert a loft into an annexe, but the use must be incidental to the enjoyment of the main dwelling house, which means it can only be occupied by members, dependents or guests of the main household. To let the space out on the open market, or to dispose of the property separately from the main house, consent is required for an independent dwelling.

16 Mezzanine Conversions

A SEMI-STORY CAN CREATE A STRIKING FEATURE IN AN OPEN PLAN SPACE

Where the amount of space to be gained by a full loft conversion is limited – for instance in a small terraced house or flat, or in the case of a conversion of a small building – a mezzanine design can work well. This is also a good design solution where the amount of space required to create a separate staircase reached from the hallway means sacrificing too much room, so the conversion becomes part of the room below instead.

The Building Regulations technically prevent the mezzanine from being a habitable space (unless below 4.5m above external floor level), but they're often used as living space, an en suite, a study, a home office, or a play area. If there is insufficient room for a conventional staircase, as a single room conversion the Building Regulations allow the use of a space-saver staircase or a fixed loft ladder with handrails.

17 LOFT PODS

FINISHED IN JUST ONE MONTH

Using modular construction methods it is possible to add a loft conversion extension in little more than a day, decorated, carpeted and furnished. As well as the ease and convenience, with minimal site disruption, factory-controlled conditions allow the loft to be very well insulated and airtight, to maximise energy efficiency.

Cumbria-based LoftPOD recently designed and delivered a fully finished 27m² loft space by road, and craned it into place on a mid terrace Victorian house in Leicester (BELOW).

The existing roof had been removed in readiness via a scaffold, and the loft was lifted carefully into place on steel brackets. A full scaffold during this work was thus avoided.

LoftPOD designed and built the loft in less than four weeks, but following the sign off, the design and engineering calculations, the main structure was assembled in just one week. The price for the LoftPOD, designed, supplied and fitted, varies according to specification but is in the region of £1,000/m². loft-pod.co.uk



The loft components are delivered to site



The pod is craned into place



The loft is finished in just under a week



Ceiling heights practically need to be 2.2-2.4m else the ceiling in the lower storey may have to be dropped. Econoloft (econoloft.co.uk) has created this luxurious master suite above a Beckenham terrace at a total cost of £34,000

18 Lower Floors

In a Conservation Area alterations to the roof may not be permitted, especially increasing the existing ridge height. Where loft space is limited, a solution is to lower the ceiling in the storey below. This will add to costs compared to a standard conversion, as the existing floor/ceiling joists will need to be removed and replaced at a lower level, and a new plasterboard ceiling added in the storey below. There is no minimum ceiling height required by the Building Regulations, but the minimum practical ceiling height is 2.2-2.4m (2m in an attic room). The maximum height that existing ceilings can be reduced by is usually dictated by the height of the window heads, although it is possible to form a box detail around the window heads, which will be incorporated within the eaves of the attic room.

19 Create a Roof Terrace

AN OUTDOOR AREA WILL ADD ANOTHER DIMENSION TO YOUR CONVERSION

Creating an outdoor living space as part of a loft conversion can add an extra dimension to the space. It can also make better use of loft level space, as a feature like an inverted dormer – cut into the roof – or a cabriolet rooflight can extend right to the eaves where head room in the loft would be too low.

Many roof terraces are built over a flat roof that is at the same floor level as the loft conversion, covering part of the storey immediately below. Typically the roof will need to be strengthened to take foot traffic, and a doorway added for access. The terrace surface will need to be non-slip and suitable for foot traffic; a balustrade will need to be erected around the perimeter of the terrace. A change of use of an existing roof to a roof terrace requires planning permission.

Another option is to create a covered outdoor area beneath the eaves of a projecting gable roof, but this does usually mean sacrificing some of the internal area.



DESIGNER'S ADVICE

“Look for Ways to Increase Light”

DANIELLOUISY, DIRECTOR OF ASHVILLE INC (020 7449 2638), GIVES HIS TIPS ON LOFT CONVERSION

“When converting roof or loft space into living space, it is important to utilise every square inch. In prime postcodes an additional 20-30ft² gained at the design stage can make a huge difference to property value, while adding a minimal amount to the build cost.

“In the design process we primarily use areas with full head height for living space and pitched roof areas for offices, bathrooms and storage. We are always looking for ways to increase natural light in the designed space. A simple example of this would be the introduction of Juliet balconies to replace conventional windows, and maximising the number and scale of skylights.

“Internal room sizes and composition are governed by client input. We always ask clients: “What do you want this space to do for you?” Any additional living space must enhance your lifestyle or cater to it in some way. For example, if a loft is being created to accommodate growing teenagers, our recommendation would be two bedrooms, and depending on space available, a shared Jack and Jill bathroom, or two en suite bathrooms.”

20 Open Plan

An open plan loft conversion can make better use of space than one divided up to form a landing with walls around it to form a fire-protected staircase, especially where the staircase needs to land in the centre of the space because of the layout on the storey below. The fire door separating the additional storey from the rest of the property can be positioned at the foot of the stairs on the landing, instead of at the top, with a small landing at the foot of the attic stairs at least as long as the width of the stairs. 