

Whether you're looking for a striking focal point for your new-build or simply want to update or replace your existing stairs, our essential guide will tell you everything you need to know...

Step by step

A staircase holds a unique position in a house. It is the key to movement and flow, playing a more important role than any of the individual rooms it serves. It is also the most functional element of a house, the point at which the structural bones of a building are laid bare. Considering the amount of emotional and practical energy invested in this portion of the home, not many people embark on altering a stair. Yet there are myriad reasons to do so, from bringing in extra light and storage to reordering the footprint of your whole home. Follow this guide to all the options, from new-builds to ways to update existing stairs.

New-builds

The stair is often the last thing you consider when constructing a new-build. This is no bad thing, as it is the final piece of the structural jigsaw to be slotted into place. 'Until there is an accurate measurement, finished floor to finished floor, we can't begin to design the staircase,' explains Pear Stair's Dean Hammond, whose company completes 20 unique stairs for self-build projects every day.

However, there are some things that cannot be changed, and therefore must be considered beforehand. The placement of the stair is crucial; it will dictate the way the spaces are used. A standard stair up the side of a home will create well-proportioned upper floors, good for a family, but may not be as exciting as a central stair, for example. A transverse stair, running across the house, may give drama, with a bold hall and landing, but

can cause problems with light in lower floors, and eat up space on upper floors. A double-height living room with staircase can look fantastic, but may reduce the balance between floors, making one much larger than the other. All these issues must be considered at design stage, before the stair has been commissioned. 'A stair has a pure function – to get from A to B – yet there is something quite intangible walking from one floor to another,' says Catherine Burd of Burd Haward Architects. 'The language of the house needs to relate to the staircase, so how you situate it is all-important,' she adds.

'We consider the functional elements, the running of the house, when deciding where to put a stair,' says Simon Knox, of Knox Bhavan Architects. 'Firstly, is it a service stair, or a show stair? If it is the latter, it needs room, for people to see it and enjoy it.'

Ask yourself: do you need extra storage? If so, block in your stair next to a wall so cupboards can be added under the stairs. Or can you afford to create a show stair with open risers through a double-height living room? Any new-build stair should also be well lit – consider the natural light, perhaps with the addition of skylights or floor-level windows on landings, and also ambient light from surrounding rooms and hallways. __

right This staircase by Patera Engineering is the central spine that links together this four-storey home. A white-painted steel frame supports timber board treads, which have been left open without risers and carpeted. Instead of a traditional banister, steel wires stretching up through the frame ensure the staircase complies with building regulations. A similar design would cost around £30,000



MICHAEL FRANKIE



Renovations

There are numerous considerations when replacing a stair. Unless you're fitting like with like, in structural terms, then it can make sense to employ an architect. Catherine Finkernagel of Finkernagel Ross has carried out a number of stair replacements and refurbishments in period properties, but warns not to rush in to things. 'If the stair is particularly beautiful in its own right then we would definitely consider refurbishing it. We don't believe in taking out original features for the sake of it.'

Some may wish to reorient the stair to change the function of living spaces. For example, a staircase in a period home could be shifted out of the main body of the house to create larger, more integrated living spaces without destroying the integrity of the building. But, any structural changes, like the construction of an extension to house the stairwell, will have significant implications for the budget. This may be a pill worth swallowing, however, as replacing a stair can take weeks, even months, so there will be disruption to home life anyway.

For a less invasive solution, where access allows, made-to-measure wooden stairs can be bought, with prices starting at less than £500 for a straight staircase with one balustrade, and companies such as Hanson can provide made-to-measure pre-cast concrete stairs in both straight and winding configurations.

The cheapest option, for those with a wooden stair that simply needs repair, is to employ a reputable carpenter (findacraftsman.com).

The most budget-savvy alteration to the function of a stairwell is to add under-stair storage which, when well planned, can swallow huge amounts of clutter. If you can afford to lose storage space, consider removing existing panelling or storage from under a stair to add useable floor space to a downstairs room. You may be surprised at the potential for that dark, gloomy space – as an extra toilet or shower room, for example. __

Building regulations

There are specific building regulations covering the size of staircases. The full information can be found in Document K of the Building Regulations at communities.gov.uk. The regulations also cover specific details about landings, door openings and the height of rail guards and balustrades to ensure safety, but from a planning perspective, the key regulatory feature for staircases is their specified size. The minimum tread size (the horizontal part of each stair) is 220mm; the riser (the height of each step) must be between 190mm and 220mm. There are no recommendations for minimum staircase widths, but the width of a standard flight of a staircase is 860mm and anything less than 600mm is impractical. The gradient cannot be greater than 42 degrees. In addition, a staircase with open risers likely to be used by children under five should be built so that a 100mm sphere cannot pass through the open risers. The same regulation applies to the balusters, or spindles, the vertical element of the balustrade. Clear headroom of 2000mm should be provided over the whole width of your staircase, but this can be reduced to 1900mm at the side in some situations for loft conversions. So-called 'space-saver' staircases, featuring alternating treads can allow you to get up to the next floor in approximately half the distance of a normal flight of stairs – ie, they climb at a much steeper angle than a standard stair. These adhere to building regs and are very popular for loft conversions, where space is restricted. Additional regulations cover spiral staircases, which are less stringent if the stair is serving only one habitable room. Unless you live in a listed building, you will not need planning permission to replace a stair.

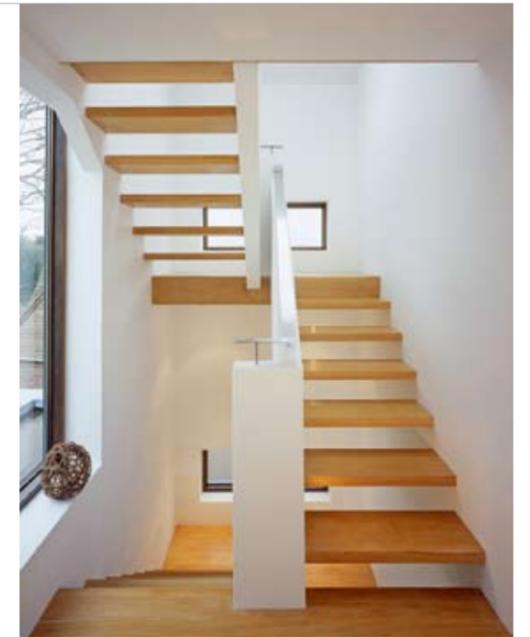
far left This cantilevered glass staircase by Spiral Staircase Systems cost more than £10,000, but the owners feel it was worth every penny. At night, a state-of-the-art lighting system transforms the stairwell, changing it from orange to blue to purple and pink, depending on the owners' mood
left If you're building a new staircase, consider whether the design could incorporate some much-needed storage space. As part of a new-build house by Lynch Architects, this structural plywood staircase with oak treads doubles as a

library, with the landing designed to be a quiet space for reading
below An elegant spiral stair by Spiral Staircase Systems is built around a steel stringer and centre pole with plywood panelling to form the balustrade. The treads are formed from steel and plywood then carpeted. A similar project would cost £20,000, including installation
below right The owner of this Sixties home took a sustainable approach to refurbishment. The three-storey staircase was updated rather than replaced, with new

FSC-grade oak treads and brick with clay plaster walls. A large skylight reduces the need for artificial light. The project was done by BBM Sustainable Design and cost £10,000
bottom right Designed by 51% Studios, this bespoke staircase hangs in mid-air, with the weight of the structure carried from an existing structural joist in the ceiling. Made by a carpenter from the Triple Dot company, it features birch ply risers with a zebano balustrade, and the staircase has been left exposed at the back so the high level of craftsmanship is on show



JEFFERSON SMITH-SUE BARRVIEW; LEIGH SIMPSON; EDINA VAN DER WYCK



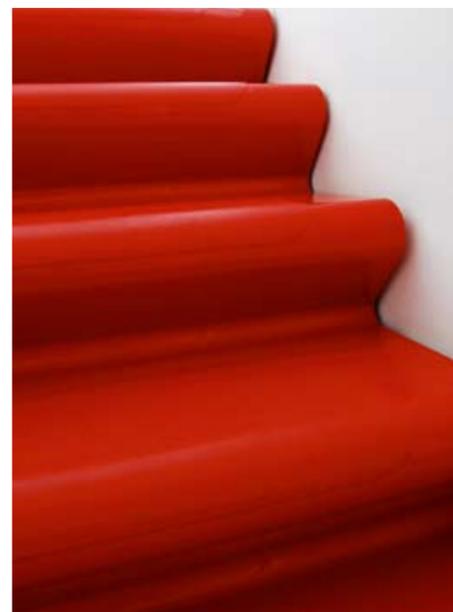
below The use of open treads and a glass balustrade dramatically increases natural daylight in this house. Designed by Finkernagel Ross Architects, the steel structure and glass balustrade were fabricated by John Desmond, while the American black walnut treads were made by Richard Newnham Furniture. Quarter landings allow the stair to climb at a gentler gradient than the previous staircase. The total cost was £25,400

below centre If space is an issue, paddle stairs, such as this solid-oak design by architect Nissen Adams, are a great option. With its steep gradient, the staircase requires a much smaller footprint than a traditional design, maximising the

available space in this new roof extension **below right** Architect Barnaby Gunning worked with AM Structures to create the specially designed mould for this lightweight fibreglass staircase, which has a red gel coat to give it its vibrant colour. Costs are £2,500 for a run of eight steps **far right** The centrepiece of this barn conversion by Simon Condor Associates is a stunning, circular oak staircase in the double-height hallway. For safe use, the bespoke staircase is encased in a glass cylinder to meet building regulations



DAVID LAMBERT; STALE ERNKEN; CHRIS GASCOIGNE/VIEW



Designs

Think very carefully about the style of your stair, as the need to solve more problems to fit the stair of your choice will considerably increase the price, and may raise aesthetic and practical issues, too. So what's the best option for you?

Straight

The standard straight run with half or quarter turn on a landing is the classic stair that runs along one wall of a home, or occasionally across it. Can be wasteful of vertical space, with a large drop to any landings, but solves more problems than it creates, giving coherence and good proportionality to upper floors.

Winder

The standard straight run is challenged only by winder stairs in popularity. An efficient use of space, the winder – which alternates straight sections, landings or tapered stairs winding round a central axis – creates interesting

shapes, but without a dynamic approach to finishes it can often end up looking dowdy and old-fashioned.

Alternate

A paddle stair, with left and right treads to save space, can be a way to access a loft space while avoiding major structural changes. Pluses are these stairs conform to building regs, are very cheap to buy and require no additional work to install. Downsides are the steep angle, which makes them awkward and dangerous for children and those with limited mobility.

Cantilevered

A cantilevered stair will provide a fantastic effect and the lack of risers will let light into areas that a standard stair would keep dark. Be aware of the issue of safety for children under five, the open nature of the space for privacy and heating, and also the loss of potential storage space under and around the staircase.

Helical

Running in a wide spiral up the inside of a virtual vertical cone, helical stairs can have a significant impact in a home, will be entirely unique, but are very costly to install, and take up a lot of space. One major advantage is the central void, which can draw light deep into a tall building. Practical for multi-flights over a number of floors.

Spiral

Despite their space-saving reputation, spiral staircases are surprisingly bulky, with a square footprint that often is at odds with the shape of access areas. 'I wouldn't rely on a spiral staircase for a main stair,' architect Simon Knox advises. 'They're a bit tight on space and you can't get furniture up them.' However, a spiral stair can be perfect to gain access to a single room at the top of the house, or to access an outside balcony from ground level. __



right For a traditional look, a carpenter can create a wooden staircase. In keeping with the rustic look of this barn conversion, Hailsham Joinery made a sweeping oak design, costing £30,000-£35,000

below right A glass staircase is a clever choice for a basement conversion, as it allows natural light to filter down through the space. It's an expensive option, however, and designs such as this one would cost around £20,000

Materials

Think carefully about the staircase finish, particularly if you have an open stair running into a few living areas, as it will affect the decoration in all the rooms it enters.

Wood

The most popular material for a stair, wood is versatile, sustainable, easy to use, light and low cost. 'I'd say 95 per cent of our customers go for American oak if they want a hardwood finish,' says Pear Stairs' Hammond. 'You can't go wrong with oak.' Softwood stairs are the cheapest of all, starting at £200 and can look great when finished with modern waxes or stains. A classic winder stair in oak costs around £1,500, while the sky's the limit when specifying rare timber: exotics are much more expensive, running into the tens of thousands.

Stone

Sean Collins of stone stair specialist Boden & Ward says a solid stone stair in a popular stone like Portland will cost £1,500 to £2,000 per stair on a standard rise of 16 steps. The stone needs to be hand-cut and constructed by trained craftsmen, so there is the issue of longish lead times, but the final fit is relatively fast – two to three weeks. There are issues due to weight – each step needs to be anchored, like a cantilevered stair, to a solid wall and the bottom step must be rooted into the foundations of the building, but a steel structure can be used to support the stone if you wish to place the stair in the centre of a building away from a solid wall.

Precast concrete

Increasingly popular, due to its relative low cost and versatility. Can even be used to retrofit a new stair in a period home and once polished, the finish can be as dramatic as stone. However, most concrete stairs are structural only, and are finished with wood or plaster. Prices for a precast concrete stair, created using a bespoke wooden mould, start at around £2,000 for a straight flight and around £5,000 for a winder.

Metal

Cast iron is great for spiral staircases and not too expensive, costing £3,000 for a 1.8m-diameter main stair and around £2,000 for a 1.3m-diameter stair to a loft conversion. Reproduction Victoriana in aluminium comes in at around the same price, and does not



require additional structural support on upper floors. Ready-made stairs in aluminium or steel can provide industrial chic for around £1,000 for a straight flight. Steel is a great structural material and can be used to create the framework for a cantilevered stair or a stone stair. Increasingly sophisticated veneers, including dark wood such as walnut, can be used to add warmth and a natural finish.

Glass

Rarely used for treads and risers (although Italian stair specialist Marretti does manufacture a range of modular glass staircases), glass is hugely popular as a material for balustrading and guard rails, because it allows light to penetrate the often confined spaces where stairs and landings are housed. Its one drawback is the price: a simple glass and aluminium system will cost around £300 per m for a straight section, approximately twice the price of the equivalent metal modular system.★

SUPPLIERS

Architects

51% Studios

(0845 612 3991; 51pct.com)

Barnaby Gunning Architects

(020 7372 2424; barnabygunning.com)

BBM Sustainable Design

(01273 480 533; bbm-architects.co.uk)

Burd Haward Architects

(020 7722 0788; burdhaward.com)

Finkernagel Ross Architects

(020 8555 0951; finkernagelross.com)

Knox Bhavan Architects

(020 7701 3108; knoxbhavan.com)

Lynch Architects (020 7278 2553;

lyncharchitects.co.uk)

Nissen Adams

(020 7633 0000; nissenadams.co.uk)

Paul McAneary Architects

(020 7287 8767; paulmcanearney.com)

Simon Condor Associates

(020 7251 2144; simoncondor.co.uk)

Stair engineer

Patera Engineering

(01782 312 277; pateraeng.co.uk)

Specialist metalwork

John Desmond

(020 8946 8295; johndesmond.com)

Fibreglass stairs

AM Structures

(01983 400 044; amstructures.co.uk)

Spiral stairs

Spiral Staircase Systems

(01273 858 341; spiralstairs.co.uk)

Bespoke wooden stairs

Hailsham Joinery (01273 814 680; hailshamjoinery.co.uk)

Pear Stairs

(01938 553 311; pearstairs.co.uk)

Richard Newnham Furniture

(01980 862 651; richardnewnhamfurniture.co.uk)

Triple Dot (07870 554 851)

Glass stairs and balustrades

Balcony Systems

(01342 410 411; balconette.co.uk)

Marretti (marrettistairs.com)

Stone stair repair

Lawrence & Co

(01942 674 785; lawcoflooding.co.uk)

Stone stair construction

Boden & Ward

(01327 349 081; bodenandward.co.uk)

Precast concrete stairs

Bespoke Precast

(bespoke-precast.co.uk)

Paddle stairs

Stairplan

(01952 216 000; stairplan.com)