

# Let there be **light**

The type of window you choose will have a huge impact on your new home's style and energy efficiency, says **Sophie Hoyland**

**T**hey're one of the first things visitors notice when they arrive at your house, so selecting the right window is key to the success of any self build or renovation project. So what do you need to consider when picking them?

### Building regs

Before you select new fenestration, you need to consider what's permissible under

planning laws. Planning permission is not normally required for repairing, fitting or replacing doors and windows (including double glazing). However, if the building is listed or is in a conservation area (or other designated zone) you should consult with your local authority before you put in an order with your supplier.

Since April 2002, Building Regulations have applied to all replacement glazing, if you're putting in the windows yourself, you will need to arrange for building control to inspect your work upon completion. The regulations apply to thermal performance and require a U-value of  $2.0\text{W/m}^2\text{K}$  or less per window (including the frame and glazing) on new builds. For renovations, a U-value of  $1.6\text{W/m}^2\text{K}$  is the maximum, while for extensions the limit is set at  $1.8\text{W/m}^2\text{K}$ . U-value is the measurement of the rate of heat loss through a material. The lower the number, the more energy efficient the unit will be. Other areas such as safety, air supply, means of escape and ventilation also apply.

Alternatively, you could use an installer registered with a competent person scheme (BSI, CERTASS or FENSA) who is approved to carry out the work to comply

**Left:** The Jeld-Wen stormsure conservation range can be specified with U-values as low as  $1.0\text{W/m}^2\text{K}$  with double glazed low-E glass. **Above:** Olsen Window's Combi Timber is made using laminated pine frames encasing a double glazed unit with U-values from  $1.4\text{W/m}^2\text{K}$



with Building Regulations without involving local authority building control. When the work is complete they will give you a certificate showing the work was done by a registered installer. For more detailed information download the Building Regulations Approved Document from [www.planningportal.gov.uk](http://www.planningportal.gov.uk)

### Materials

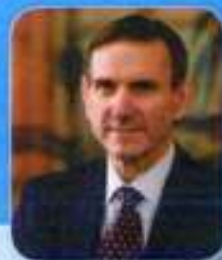
There are four popular options suitable for framing your glazing - wood, composite, metal and PVCu.

Wood is typically used for traditional style properties and creates an aesthetically pleasing exterior and interior. If you pick an FSC certified timber you'll know it's from a responsibly sourced forest. "It's also got great thermal performance and noise reduction qualities," says Lizzy Steward at Sunfold Systems. However, as a natural material it can deteriorate over time if not properly maintained. Left unprotected, the wood can swell and this movement can create air gaps and change the overall fit of the window. "It means that you will need to factor in regular maintenance costs and treatments after installation when considering timber," says Lizzy.

Metal windows, such as aluminium or steel, are lightweight but extremely durable and weather resistant. "They're available in a number of different powder coatings and are much more suited to contemporary projects due to their slimmer frame," says Lizzy. "To ensure you don't lose any thermal efficiency, make sure there is a thermal break to bridge the exterior and interior section of the frame, without one you'll create condensation and heat loss."

Composite windows are made from a combination of aluminium cladding on the exterior and a wooden interior. Using both increases the overall strength and lifespan of the window. "The positives are that they're low maintenance and available in a range of colour options. Plus, thermal efficiency is guaranteed. There is also far less risk of warping than if you just used timber. The only negative is that this type is usually only available from specialists and more likely to be custom-made rather than an off-the-shelf product, which can prove quite expensive," says Lizzy.

The final alternative is PVCu. It usually gets bad press for its use of harmful chemicals and energy in manufacture. The often bulky frame can discolour over time. ●



### Glazing solutions

Garry Smith, technical advisory service manager at Pilkington, helps you choose the most suitable option to fill your frame

**SELF-CLEANING GLASS** It has a unique dual action coating. The first stage is photocatalytic, whereby the top layer reacts with daylight to break down organic dirt. The second stage is hydrophilic. Instead of forming droplets, rainwater hits the glass and spreads evenly, running off in a dry sheet leaving fewer streaks. It's great for homes by the ocean or near busy main roads.

**TEXTURED GLASS** It's usually used in bathrooms and kitchens to create privacy, yet still allows maximum light to enter the home. Look out for toughened or laminated versions for added safety and security.

**THIN GLAZING** If you want the energy efficiency benefits of double-glazing but in a unit that's only 56.5mm thick, check out Spacia glazing by Pilkington. It's perfect for renovating traditional properties where you may want to restore existing slim frames.

## Case study: Clement Windows

When the original windows in this 1930s property in Woking came to the end of their life, the client wanted to replace them with sympathetic steel frames rather than a modern alternative, such as aluminium, to retain the traditional feel of the house.

They found a suitable match with the Clement EB24 range. It has single point locking which is almost exactly the same as

the original windows. The owners paid close attention to detail to ensure the diamond lead design on the original windows were replicated on the new openings. Period features, such as the classic S peg stays and pear drop hinges, have been used to help the new units blend in well with the originals.

The only modern touch on the windows is the high level of thermal and acoustic

performance in the 24mm double glazed argon filled units. They've been made using high-precision hot rolled steel window sections produced from recycled materials. They have then been hot dip zinc galvanised with a polyester powder coat paint finish. **Prices for a set of four opening leaded light windows cost £1,860. For details visit [www.clementwindows.co.uk](http://www.clementwindows.co.uk)**



and can if placed in direct sunlight crack. However, it does have a number of plus points. "PVCu windows are classically weather and damp proof and require little maintenance, other than regular cleaning. They're also reasonably priced," says Lizzy.

### Style

Window designs have evolved over the years and tend to be closely linked with different periods of architecture. If you're restoring a property you'll want to choose a design that complements the existing house. "Sash

windows are common choices when replicating or renovating a traditional Victorian or Edwardian property. They're a good choice if you need to meet your conservation area requirements. If you're after the authentic look, opt for a timber version. However you should be able to find them in PVCu or aluminium finishes as well," says Lizzy.

If you're building a contemporary styled house you've got more choice in how you can open your windows. Tilt and turn, top, side or bottom hung are popular options.

Wide expanses of fixed glazing and innovations such as folding sliding doors are popular additions to modern new builds and can create a dramatic effect.

### Energy efficiency

The British Fenestration Rating Council rates the efficiency of windows on a scale of A to G using a traffic light colour scale. The system assesses the performance of the window as a whole, taking into account the frame and any casement, glazing materials used, air leakage and solar gain.

## Folding sliding doors



Glass doors are perfect for allowing more light to enter your home and for linking the outdoors with your indoor space. But what do you need to consider when buying them? **Lee Green**, technical director at Kloeber answers your questions

### What's a folding/sliding door?

Folding door panels fold like a concertina or accordion as they slide and stack at one end or both ends if you have enough doors to split either way.

### What are the benefits of installing folding sliding doors in your home?

You can open up all the rooms in your house to achieve one spacious area. It's a fantastic way of connecting your indoor and outdoor space together.

### What are the different opening options?

You can have inward or outward opening stacks, left or right handed or pass doors that can be used independently from the whole system. There are many different configurations to suit your room size and route of thoroughfare.

### What should you consider before purchasing your doors?

Check for durability and aesthetics of

design, such as width of frames, high quality carriages and mechanisms. Also verify the cost and company reputation – ask to see the work your installer has done in the same area so you can assess for yourself the quality of their workmanship!

### What materials are they available in?

Aluminium and timber are the most popular options. You can get them in PVCu but they tend to be bulky in appearance.

### Any top tips for buying these doors?

Think about where your furniture will be placed carefully and where you are likely to approach and walk through the folding door system. You won't want to have to walk around your sofa or dining table or half way round your kitchen layout to get to your door. Consider what will be outside your folding doors, too. Most open outwards so make sure you leave enough space between the open stack and features such as brick walls, plants and outbuildings.



Kloeber's range of bi-folding doors are available in both timber and aluminium

## Case study: Velfac windows

When the owners bought this run down 1938 modernist house overlooking the North Downs their plan was to fully renovate the property from its poor state into a sustainable retro-fit while remaining sensitive to its historical roots. They approached Velfac to take out the rotten steel timber and plastic frames windows and replace with a modern high performing glazing alternative.

The windows have all been up-rated with Velfac double glazed units, which help to create a contemporary feel to the home. Downstairs, structural glass-to-glass corner and floor-to-ceiling windows lead out onto a balcony and overlook the beautiful landscape and flood the room with natural light.

The windows cost £350 to £450 per m<sup>2</sup>. For more details visit [www.velfac.co.uk](http://www.velfac.co.uk)



BRFC windows are also labelled with the unit's U-value. Achievable U-values will depend on the size of the window panels, the type of frame, as well as the sealants used, and glazing and glazing coatings. So by choosing bespoke windows you can potentially lower the U-values by incorporating the right eco friendly elements into the design.

In recent years there has been an improvement in the energy performance of windows, especially with the introduction of efficient energy glass. Low-E coated glazing works year round in two ways. During a summer day, the coating absorbs nearly half of the sun's energy shining onto it. This heat is restricted from passing on into the building by the low emissivity property of the Solar E coating, which only radiates long wave infra red heat with 15% efficiency. During the winter, the glass allows UV and visible light from the sun to enter the house, but prevents it from escaping.

Another alternative is argon gas, which is introduced into the cavity of a double glazed unit, it reduces the heat conduction between the panes, helping to keep heat in during the winter and out during the summer. If you combine it with a Low-E energy glass on one side of the sealed unit, you'll further improve the thermal insulation of the window.

### Who will install?

It's essential that you find an installer who has proven experience within the industry and has worked with a range of materials on the market to ensure a good quality finish. "Carpentry qualifications, such as CIBT or NVQ should suffice," says Lizzy. "Although most suppliers will offer installation, I'd also advise you look for proof of craftsmanship through recommendations of past work before you sign any contracts. This will help ensure the job will be completed to a high standard," she says. ●

## Contacts

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