

The environmental window

A guide to sustainable windows,
doors & conservatories



SHEERFRAME®





The sustainability challenge

“Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.”

The World Commission on Environment and Development (1987)

The materials and components we use to create our new buildings and refurbish existing ones are coming under the spotlight more than ever before as we strive towards a highly sustainable society.

The battle against climate change is constant and buildings are a major CO₂ contributor. Nationally in the UK, around 40% of all carbon emissions result from energy used to power our buildings and in London that figure is as high as 70%*.

To ensure our buildings are energy efficient in the long term and created using materials that have not cost the earth to produce, product selection and specification must take into account the whole life cycle and consider post-use disposal.

Unlike other materials used in window frames, PVC performs extremely well in terms of sustainability. PVC is extremely resource-efficient in its manufacture and in the case of Sheerframe, creates windows which offer excellent thermal performance over a long lifetime. In addition, when PVC frames are eventually replaced, they can be easily collected and recycled compared with other materials.

*According to the London Climate Change Agency June 2005.

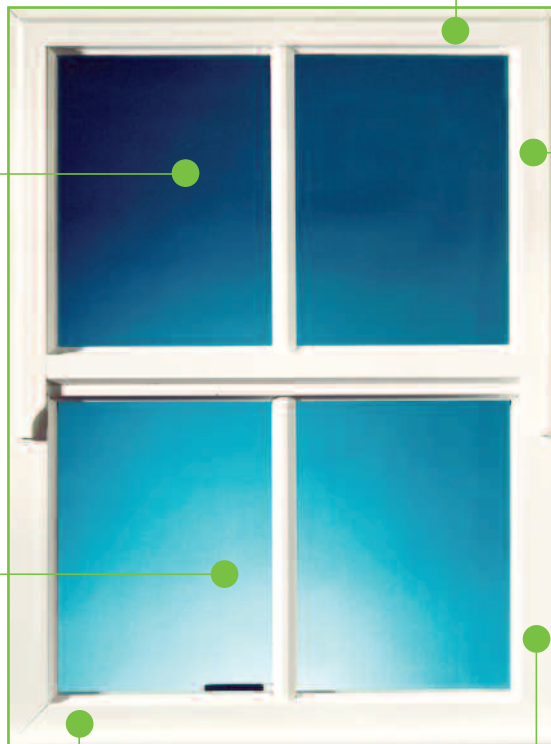


Choosing what's best

The nature of the glass has an important bearing, especially the perimeter spacer bar, the presence or absence of gas, and the emissivity and clarity of the glass, and the effect all these points have on solar gain and heat retention.

Recycling waste materials without compromising the technical performance of the end product is also a valuable achievement. In the PVC industry, like other forward thinking industries such as glass and metals, both the end of life and manufacturing process waste materials are routinely recycled to eradicate any unnecessary waste.

Heat retention during the window's lifetime, combined with low toxicity materials in manufacture and the cleaning up of waste products without compromising performance is key to the 'environmental window'.



Sheerframe windows now lead the industry in combining an optimum arrangement of thermoplastics recyclate being used in a unique encapsulation process for reinforcement – Thermlock®. This delivers strength and additional insulation without corrupting performance.



The excellent performance of Sheerframe in-use is complemented by the PVC being organically stabilized.

The use of thermal reinforcement within the new British Standards for Extrusions, BS EN 12608, when combined with Class A wall thickness (2.8mm minimum) means the insulation thickness of thermoplastic, from inside to outside, is between 13mm and 16mm. Combining Class A with Thermlock® gives more than twice the insulation value from the thermoplastic.



The benefits of PVC



PVC is very resource-efficient in its production and most importantly, throughout its long life span, a PVC frame will maximise the energy retention within a building. This is unlike low performing thermally inefficient metal windows or timber windows, which have traditionally been poor at keeping the weather out and the heat in. With 50 years or more durability and 100% recyclability, the PVC frame represents an energy store which can be retrieved and reprocessed at any time in the future.

Sheerframe windows are designed to deliver the highest performance in-use. A continuous development programme ensures that Sheerframe is always one step ahead of government legislation, beating the thermal performance requirements of Part L of the Building Regulations and Part J in Scotland.

PVC windows are amongst the most rigorously tested and approved of all construction products. Unlike some self-governing approval schemes run by the timber industry, the PVC sector believes in the values of independence and continuity of assessment carried out by the British Standards Institute (BSI) and the British Board of Agrément (BBA).



BS7412
(KM21785)



BS EN 1279
(KM24911)



BS EN ISO 9001 2000
FM 01727



BS7950/7413
(KM33522)



BS EN 12608
(KM12877)



PAS 23
KM57120



PAS 24
KM57121

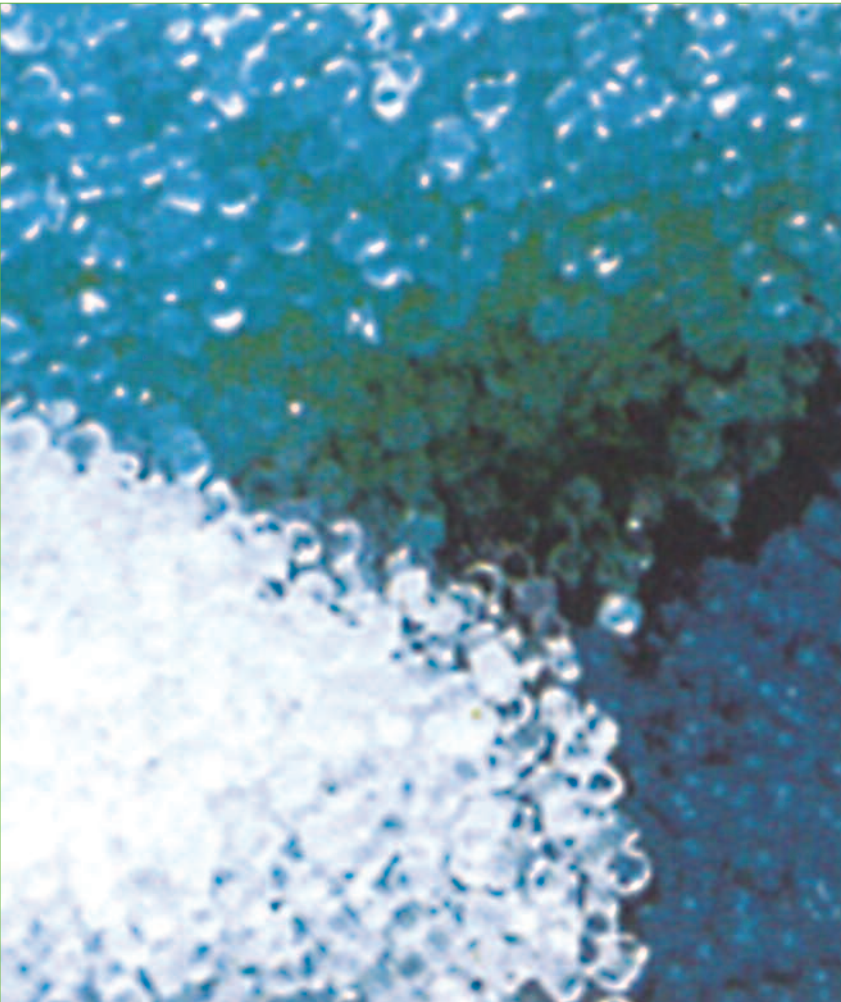


BS7950/7412
(KM33521)





Material matters



The raw materials that are used to produce Sheerframe windows are carefully selected to ensure any risk to humans or the environment – whether perceived or actual – is kept to an absolute minimum.

Sheerframe windows were amongst the first PVC windows to become lead-free, with the use of lead additives phased out as a precautionary measure and replaced with calcium organic stabilisers. It is steps like this that ensure the health of the people that manufacture Sheerframe windows and Sheerframe customers can be assured of total safety.

What is PVC?

Polyvinyl chloride (PVC) is a major thermoplastic material used in a very wide variety of applications and products. The essential raw materials for PVC are derived from salt and oil. The electrolysis of salt water produces chlorine, which is combined with ethylene, obtained from oil, to form vinyl chloride monomer (VCM). Molecules of VCM are polymerised to form PVC resin, to which appropriate additives are incorporated to make a customised PVC compound.

PVC can be plasticised to make it flexible for use in flooring and vital medical products or rigid "PVC-U", the U stands for "unplasticised" – which is used extensively in building applications including window frames.

PVC is used for hundreds of life saving and healthcare products every day – products used in surgery, pharmaceuticals, drug delivery and medical packaging, for example. It is also used to manufacture packaging for food and to make numerous components in the automotive industry – resource-efficient products which enable manufacturers to mass produce the things we demand in today's world and improve our everyday lives.



Recycling



With its manufacture process already extremely resource-efficient, PVC fits perfectly with the approach of reducing, reusing and recycling.

The Vinyl 2010 Voluntary Charter across Europe ensures that the production and disposal of PVC is carried out with total environmental responsibility.

More specifically, the PVC window industry as a whole has made some major advances in recycling, setting and achieving targets that other industries would find it hard to achieve. It already recycles 50% of the collectable end of use frames and is working hard to keep increasing this figure.

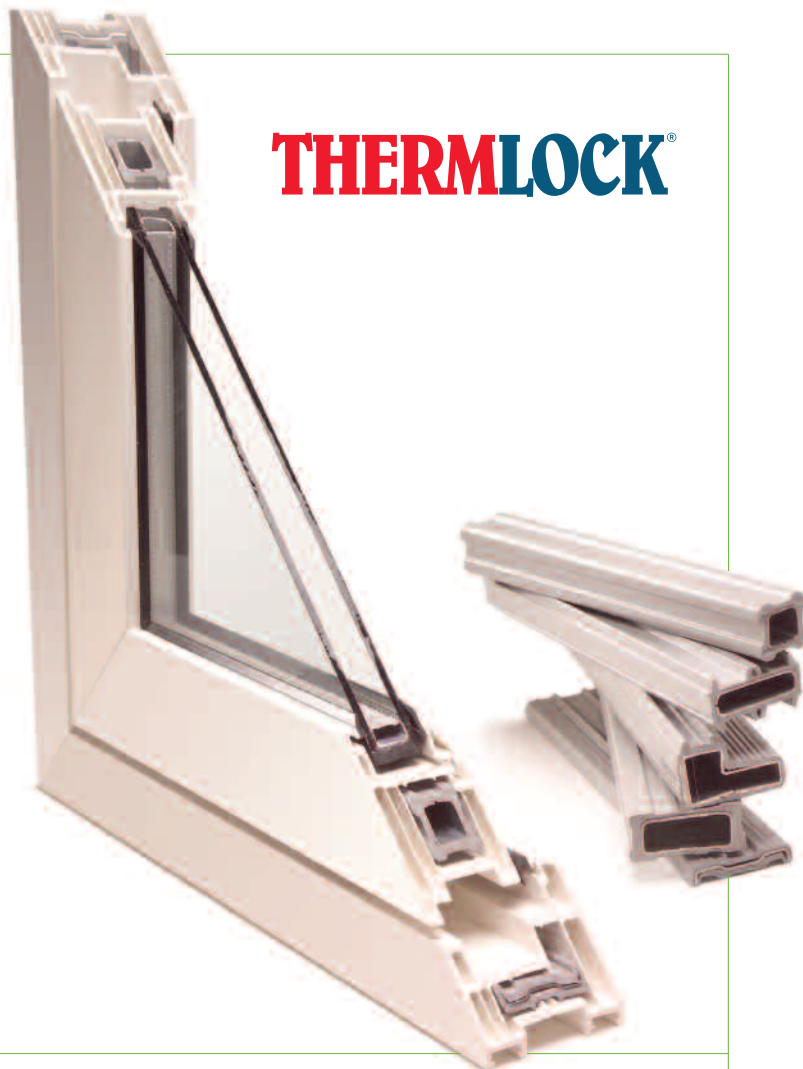
On the contrary, recycling of end of use timber windows is more troublesome. Timber frames can be contaminated with a vast range of preservatives, fillers, cements, paints and solvents. Despite this pollution danger, 61%* of timber from demolition sources goes straight into landfill.

PVC is a much more straightforward process thanks to the presence of the chlorine molecule. This means PVC can be easily identified and separated from other plastics for recycling.

*According to CIRIA / Defra figures quoted in Window of opportunity published by WWF-UK.



Uniquely optimising energy efficiency



Throughout its life, Sheerframe PVC windows offer exceptional performance. The system's advanced design to BS EN 12608 ensures the highest quality windows through a series of design innovations.

Superior weathersealing

Co-extruded weatherseals ensure maximum air and water tightness and prevent heat being lost easily through draughts. This is one of the most underrated measures of energy efficiency, but one of the most important to any householder.

Multiple chamber profile

Sheerframe windows feature four or five chamber profiles, increasing the honeycomb effect of the frame to reduce thermal conductivity.

Thermlock® reinforcement



Steel and aluminium reinforcement often let down the overall thermal performance of the window. Sheerframe PVC windows are different. They feature Thermlock®, developed by encapsulating the metal in a specialist insulating thermoplastic compound.

Intelligent glass combination

The glass has a significant bearing on the window's performance. Sheerframe's design maximizes the role of the glass to take advantage of the positive contribution made by solar gain and heat retention.

Top energy ratings

This combination of design innovations delivers a window capable of achieving very good ratings under the BfRC window energy rating system. Depending on the configuration, Sheerframe windows can achieve B ratings – even when reinforced – representing an exceptional energy efficiency performance.

Energy window	
Manufacturer Model	
More efficient	B
Energy index kWh/year	7.46
Climate zone	UK
Thermal Transmittance U window	1.47 W/m ² K
Solar Factor G value	0.43 W/m ² K
Air Leakage L value	0.01 W/m ² K
 www.bfrc.org.uk 	
<small>This label is not a statutory requirement. It is provided as a reference device to allow consumers to make informed decisions on the energy performance of competing products.</small>	



SHEERFRAME®



Choice of styles



A wide range of Sheerframe window and door styles means homeowners, housebuilders and Registered Social Landlords can take advantage of PVC's sustainability benefits whatever the property.

The range reflects traditional British window and door styles and caters for almost any architectural design. Balance and modernity, as well as an acknowledgement to historical detail, provide original and elegant design solutions.

From pivot and fully reversible windows to tilt and turns and traditional casements, Sheerframe windows are designed for maximum visual appeal. But it is the Sheerframe vertically sliding sash window that really is in a league of its own.

The Sheerframe vertically sliding sash is widely acknowledged by architects, specifiers and planners as the most stylish design in its class. It is a truly unique window which dispels the myth that traditional timber sash windows cannot be replicated in PVC. Planners love it too, with the Sheerframe VS increasingly being approved for use within conservation areas across the UK and Ireland.

The advanced design of Sheerframe windows brings nothing but a positive aesthetic impact. White PVC is the most popular choice, but Sheerframe windows also come in a wide variety of colours including woodgrain finishes which perfectly replicate the look of different timber grainings.



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