



ENVIRONMENTAL

Environmental impact is more than just a matter of conscience in today's building industry – it is a critical business driver. Sustainability, whether in building design, the carbon footprint of materials or in the actual building process itself is under intense scrutiny and increasingly regulation.

Every stage of the supply chain has a part to play - whether you are an architect specifying a product, a paint manufacturer reducing lead content or, like us, a manufacturer of materials in PVC (PolyVinyl Chloride) – a material whose environmental benefits are all too often underestimated.

PVC was first introduced nearly 50 years ago as a building material and is widely used throughout the modern home. Externally, PVC helps keep the elements out; it is used in the windows, doors and in the roof space. Internally it can be used for the floor, skirting, architrave, walls etc.

Why is the construction industry one of the largest user of PVC? This is because, compared to the alternatives - it is durable, versatile, inert and very good value for money.

As a building material, PVC also ticks the box of having strong environmental credentials, both in its manufacture, through-life performance and in its post life recyclability. PVC is 100% recyclable due to its advanced mechanical recycling properties.

Generally speaking, timber or cellular PVC products are the main two major systems used for modern domestic roofline and cladding applications.

Timber is traditionally been used to provide an elegant, functional and long lasting product. It is seen as an environmentally excellent material because it is 'natural' and 'renewable'.

However this is not quite correct. Whilst timber is 'natural' and 'renewable' it is not the best product to be used in applications which are exposed to the elements. This especially applies when they are installed in a physically inaccessible part of the house such as on a roofline.

At present it is not possible to prove conclusively superior sustainability credentials for either system. However if we compare each products' resistance to the elements and the requirement for ongoing maintenance then Cellular PVC is a clear winner. It lasts the longest, requires the least maintenance, costs the least over its lifetime and has the most potential for recycling. On this basis we consider Cellular PVC to therefore be the most resource efficient of these two products.

LONGEVITY

The Building Research Establishment (BRE) currently quotes a minimum reference service life of 35 years for PVC roofline products and windows. This has been based on the examination of early window and roofline installations completed back in the 1970's.

The evidence shows that non-PVC components (ie. handles, hinges etc which are used on all windows and doors) are the main limitation on the life of units and not the PVC itself. In fact the PVC in the window frames and rooflines demonstrated no material change in its performance even after 35 years. All profiles maintain their functionality and remain completely waterproof.

The case for a much extended service life for PVC rooflines, where there are no limiting non PVC components, is clear as PVC products do not warp, crack, peel, flake or rot.

As a manufacturer, we currently offer a 35 year guarantee for all white profiles installed according to our fitting guidance via a network of Kestrel approved installers.

Kestrel is part of the Epwin group of companies, one of their brands had the first UK licence for the production of the expanded PVC building materials in 1972. Therefore we believe that products, which are essentially made of PVC alone, can be expected to last for many more decades before replacement becomes an issue.

It is likely that the PVC rooflines will last longer than the 60 year service life used for the BRE's Green Guide assessment. This will eventually result in a better Green Guide rating.

It's only when you look at the question of the whole life costs of buildings, material lifecycles and the maintenance required that the real benefits of PVC-UE can truly be appreciated.

A building material's lifecycle is one of the few aspects of sustainability where it is possible to put a simple quantifiable factor into the arguments. This is because the number of times that a material needs replacing in a building's lifetime multiplies up the whole life cost of that material. What may be a small difference in cost during the **material's** lifetime can assume much greater significance over the **building's** lifetime.

BRE A+ rating

It is worth noting that PVC Cladding installed over timber framing now carries a BRE A+ rating.

This allows the specifier to claim the maximum three points available under the CSH for just such an external wall system.

Fascia and soffits are not included in the Building Elements section of the Green Guide.

However Kestrel Cellular PVC roofline products do qualify for 1.5 points under the section dealing with responsible sourcing of finishing elements.

Kestrel is ISO14001 certified - All of our PVC products are recyclable and manufactured to stringent environmental standards under ISO14001.

RESPONSIBILITY AND WHOLE LIFE COST BURDEN

Overwhelmingly, specifiers have a duty of care both to the building owners and users in terms of the whole life cost of materials. They should, therefore, weigh up the facts about whole life costs and sustainability arguments with care when selecting a material for building use, using a rigorous cost/benefit analysis.

Traditional cladding and fascia materials, e.g. wood, when used in exposed external applications, need considerable treatment with maintenance every 5 years. Even so, their lifetime can be less than 30 years. PVC-UE in contrast has a life in the region of at least 35 years.

MAINTENANCE

Timber requires regular maintenance to combat the elements but is unlikely to receive the necessary attention for two major reasons:

Paint Systems -The majority of contract quality gloss paint systems currently available are unable to cope with the expansion and contraction characteristics of softwood for more than 3 years without losing their integrity. This occurs even when applied in the sequence and according to the method recommended by the manufacturer.

Micro-porous paint systems are more able to accommodate the daily movement of timber and the expression of water vapour that accompanies it. However they are costly and detrimental to the contractor's bottom line. In addition, these paints must be applied from new and refurbished in the same materials in order to be effective in the long term.

Access - a house's roofline normally is not properly accessible via a standard roofer's ladder system which is designed to allow work to take place on TOP of the pitched surface. It is not safe to employ traditional ladders as the soffit overhang encourages the worker to lean away from the building thus putting his safety at risk.

Safe access requires scaffolding or specialist cantilevered access decking. Without safe stable access, a painter cannot hope to fully protect the most vulnerable areas and important areas of the roofline, i.e. around and above the gutter brackets.

LIFETIME COSTS

The initial installed costs for PVC-UE roofline are roughly the equivalent with those for timber. (Installed costs mean materials, paint and labour). Where PVC-UE scores heavily is in the minimal maintenance costs incurred during its service life.

For reasons already outlined above, timber must be regularly maintained to keep its looks and retain its integrity. If one assumes a regular four yearly maintenance cycle then timber will have been repainted at least seven times during the BRE minimum service life for PVC-UE which is 35 years.

Where social housing and privately rented accommodation is involved the landlord will be seeking to minimise maintenance costs and these ongoing charges will be unwelcome.

In reality it is rare that a landlord or indeed private house holder will keep up a strict recommended maintenance regime. However, even if they work on an 8-year refurbishment cycle the lifetime costs for timber are high.

With an extended maintenance cycle the degradation of the timber is likely to take place sooner than otherwise expected and so you would also need to include the cost of a replacement of the substrate.

Finally it is worth remembering that 35 years is the "reference" life expectancy for PVC roofline products. The

real expectation from manufacturers such as Kestrel is that their products are proving that they last significantly longer.

EMISSIONS

PVC products are inert, ie motionless so once manufacturing is complete they do not generate greenhouse gasses during their product life time.

However timber inevitably requires the assistance of preservative coatings to avoid degeneration. This includes the production and application of paint strippers, heat guns, primers, undercoats, gloss paints. Additionally, we need to include the manufacture of glass paper, paint brushes and a number of other accessories. All of the above items are needed to maintain timber products and as such they all contribute to CO2 emissions during the maintenance cycle for timber.

It is also worth noting that further greenhouse gasses are also produced in the transportation of labour and materials to and from site.

MANUFACTURING WASTE

Kestrel constantly reviews its manufacturing processes to identify and recycle production waste including start-up waste, damages and even saw dust from inline saws. All of our PVC products are 100% recyclable and manufactured to stringent environmental standards under ISO14001. Therefore it is very rare and only under unusual circumstances is any material sent to land fill. We incorporate all recycled material in our new products.

Within the PVC construction products sector generally, recycling rates for production waste tend to be high

POST CONSUMER

PVC is 100% recyclable. Post Consumer recycling of PVC roofline & cladding systems is very simple. Obviously all non-PVC components such as stainless steel nails and screws need to be removed then all roofline boards can then be ground and pulverised ready to be re-used. This is the same way that production waste is recycled.

The longevity of our PVC roofline and cladding products means that to date there has not been any significant volume of post consumer material returned for recycling. Kestrel is part of the Epwin group of companies that also owns PVC recycling facilities, therefore plans are already in place to identify and attract this waste stream when it eventually begins to flow.

With the environment remaining top of political and personal agendas our customers can rest assured that they are buying from a responsible manufacturer. In 2009, Kestrel was the first in our industry to sign a partnering agreement with Recovinyl showing its commitment to recycling post-consumer PVC-U and PVC waste.

Recovinyl is the European initiative to encourage the recycling of PVC waste. It is based on the original initiative of Vinyl 2010 / VinylPlus which set out various infrastructures for post consumer recycling. It brings together recyclers and demolition/construction companies, providing a strong financial incentive to all parties to take part in the process rather than resort to land fill. The Recovinyl scheme has met all its growth targets to date and is firmly on track to meet the recycling targets to certify the use of 800,000 tonnes of recycled PVC per year by 2020. This is part of the total challenge set in the VinylPlus Voluntary Commitment.

Kestrel already works hard to reduce its post-industrial waste by recycling 100% of the scrap it produces during the manufacturing process. Furthermore, we apply the same level of commitment to postconsumer waste in all its forms. This includes recycling the small proportion of product that is ordered incorrectly or damaged in transport on its way to a site. This also includes off cuts from an installation (i.e. Short Life A Grade post-consumer waste) as well as the product taken off a property when for example the roofline is being replaced (i.e. Long Life, B Grade, post-consumer waste) at the end of that products life cycle.

Kestrel is keen to do its bit for the environment with environmentally kind stabilisers in the skin and core of the product; its commitment to reduce its carbon footprint.

Being the first Recovinyl partner in our industry, we have shown over the last decade that we continue to demonstrate our commitment to the recycling of recycling all waste products including post-consumer waste.

TIMBER RECYCLING

Treated and rotted timber on the other hand cannot be recycled. It has to be sent to land fill where it degrades and eventually gives up its 'carbon store'. Link to:

<https://www.unece.org/forests/outlook/carbonstorage.html>

Harvested timber is converted into a wide variety of wood products. Their carbon content moves through different levels during their life cycle. After their use, products are sometimes recycled, and ultimately burned or deposited in landfills where they slowly decay. The carbon stored in wood, which was initially captured from the atmosphere, is finally released back into the atmosphere.

This aspect of timber specification can easily be overlooked in the desire to embrace what is a natural material, and a renewable material, but it is by no means the most sustainable material for this application.

Treated timber in fact is actually classified as hazardous waste because of the chemical content of the preservatives used. It therefore requires special handling and disposal.



SUMMARY

As a responsible manufacturer, Kestrel aims to provide consistent PVC products with no imperfections whilst adhering to ISO14001 environmental standards. As an organisation we seek to minimise waste arising, promote recycling, reduce energy consumption, reduce harmful emissions and where possible, to work with suppliers who themselves have sound environmental policies.

Our products preserve natural resources and offer a lower carbon footprint than many other materials. PVC products offer a low thermal conductivity making them more energy efficient and their insulation properties surpass that of aluminium and timber. It is important to note that PVC products degrade less and provide greater recycling opportunities due to its advanced mechanical recycling properties. Recycling prevents a substantial amount of greenhouse gases and significantly reduces energy consumption. Recycling contributes to the preservation of natural resources and significantly reduces landfill volumes.

Furthermore and most importantly for the end user PVC products offer a low maintenance solution which is 100% waterproof and requires no costly re-painting. Kestrel's range of products imitates timber offering a woodgrain effect finish or authentic wood grain features. All can be used and installed using traditional wood installation skills practices and tools.



KESTREL[®]
rely on it

Kestrel
Billet Lane,
Normanby Enterprise Park,
Normanby Road,
Scunthorpe,
North Lincolnshire,
DN15 9YH

Tel: (01724) 400440
Fax: (01724) 280241
Email: info@kestrelbce.co.uk



www.kbp.co.uk

