False economy

If there's one terribly expensive lesson Britain has learned about the cost of buying cheap and substituting quality products in specifications to cut costs, it's that the risk and damage done is many times greater than any apparent saving writes John Cooper, commercial director at Swisspacer

John Cooper

Product failure, and unhappy customers who suffer the failure, hurts the reputation and business of the installer directly. They complain to the fabricator, who in turn complains to the sealed unit maker. At that point big cost-multipliers kick in.

A pound saved on cheaper warm edge spacer bars in a sealed unit bears little comparison to the very significant cost of a remake and replacment in the home.

In practice, buying cheap rarely is cheap, and not all failures are rectified. Homeowners expect a money-saving, energy-efficient window with a long, trouble free life, but across the country, many homeowners are buying one thing and getting another. I recently spoke to a homeowner who doesn't even open her living room curtains on sunny days, as her sealed units have 'blown' in her words – failed so badly there is no outside view.

Leads are scarce and margins are tight, so it's not surprising that there have been more brands selling on price. But the key question is not 'how well does this spacer bar perform now?' but 'how well will it perform over the expected lifetime of the unit and window?' If the homeowner has been sold the window based on savings on heating bills, that's what he will be rating the installer on.

Warm edge spacer bars separate the panes of glass in a sealed unit, creating a thermal break to stop heat escaping through the edge of the unit. Together with the desiccant and sealant, they should stop gas leaking out and water vapour getting in because it's when gas escapes and moisture gets in that units fail.

I say 'should' because the 'barrier' foil backing on some warm edge spacer bar may do a reasonable job when new but only slow the passage of gas and moisture rather than preventing it. And time is the key factor, because installers sell windows they expect to last. Other warm edge spacers have no barrier at all, relying totally on sealants and desiccants to do the job for them. Warm edge spacers need to be 100% impermeable to guarantee a window's long-term performance.

Cheaper warm edge spacer bars can also be more difficult for sealed unit makers to process, being made from a lower quality material that's more prone to breakages, or suffer from warping or 'ripple effects' appearing with the sealant, especially with soft spacer bars.

With its rigid structure, Swisspacer creates precise edges and clean, crisp parallel lines for a high-quality, aesthetically pleasing finish. It works just as well in Mr and Mrs Jones' windows, as in huge, oversized, triple-glazed commercial IGUs, as the composite material is strong enough to cope with the weight of the glass without modification. Unlike cheaper alternatives, there's less risk of snapping and brittleness. The thought of replacing hundreds of sealed units on a commercial high-rise due to failure after a year or so is not worth thinking about.

Outstanding thermal performance, long-lasting results and a rigid structure make Swisspacer ideal for triple and quadruple glazing. Approximately 90% of the world's ultra-energy efficient and ultra-premium Passivhaus installations are specified with Swisspacer. ❐

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Exceptional standards

Fabricators, installers and end-users don't just expect great performance from the most expensive windows anymore, they expect it from all products, no matter the price. That presents IGU manufacturers with a challenge – the need to produce huge volumes of windows, all of which offer best-in-class energy efficiency. Chris Alderson, MD of warm-edge pioneers Edgetech, explains how more and more companies are adapting to the new normal

Technological progress is rarely smooth and predictable. Much more often, it advances in fits and starts. Suddenly, something will happen – a discovery, an innovation, the availability of a material or component – that makes huge improvement possible in a relatively short amount of time.

Over the last few decades, that's exactly what happened with energy efficiency. Ground-breaking innovations appeared – polyamide thermal breaks, warm-edge spacer bars, and others. Manufacturing techniques improved. And now, in the second decade of the twenty-first century, the best window products offer a level of thermal performance that would not have been conceivable not that long ago. For the time being, at least, those drastic gains have flattened off and exceptional thermal efficiency is the new norm.

We have watched the make-up of the IGU market shift quite dramatically over the ten years we've been operating in the UK. Back in 2007, there were approximately 1,300 companies making glass units. Today there are only 848.

But despite the number of IGU manufacturers dropping by over a third in just a decade, the total number of units being made has increased. So how has that happened?

The answer is unsurprisingly complex, with any number of different factors at play. But one of the biggest has undoubtedly been automation.

The idea that exceptional thermal performance is now the norm is borne out by two key trends we have watched closely over the last decade – first, the fact that between 70 and 80% of sealed units now incorporate warm edge technology, compared to just 5% in 2007. And second, the soaring interest we've seen in automation.

Particularly in America, we are now experiencing huge demand for automated Super Spacer lines, and in time that's a shift we fully expect to be replicated this side of the Atlantic.

One of the automated lines available can make an IGU every 15 to 20 seconds. The efficiency gains are obvious.

But there's more to automation than just producing more windows with better thermal performance. Increasingly, it's automation that's driving businesses and industries forward in a much broader sense.

Automation is allowing businesses to operate more efficiently, to continuously improve and to up quality and consistency. But to fully realise its potential, we need to be bold, and embrace change throughout whole sectors and industries.

The Brookings Institute estimates that there were 1.9m industrial robots in operation in 2014. By 2020, that's expected to have risen to more than 2.9m.

Chris Alderson

Automation is not primarily about shedding jobs, it is about redirecting manpower elsewhere. Less point of contact during certain stages of the manufacturing process reduces human error, while allowing you to reassign workers to the most valuable tasks.

But at the same time, it does offer a way through one of the biggest problems facing the construction sector over the next few decades – the skills shortage. The Manufacturing Institute estimates 3.5m construction jobs will need filling in the next ten years and that the lack of qualified candidates will mean that as many as two million of those could go unfilled.

Going forward, it's likely that automation technology will allow us to make even greater efficiency gains. More and more businesses around the world are coming to rely on what's known as the 'internet of things' – a term given to all sorts of different machines and devices communicating with each other using the internet.

The pace of change is only going to accelerate which means the earlier you embrace automation, the easier you'll find it to adapt to the world that lies around the corner. ❐

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