Period drama

Continuing his new series on building materials, **Kevin McCloud** looks at ultra-thin double-glazing that's perfect for historic windows

Without glass we would be either extremely cold or stumbling around at home in the dark bumping into each other. Glass is the great revealer of light and shade in our buildings; without it there would be no interior design. Think about it – decorative wallpaper depends on an amorphous solid formed by melting then cooling sand.

The invention, not just of glass, but of framing systems, double glazing, special metal oxide coatings to reflect heat, gas-filled voids and silicone sealant have, in the past fifty years, been responsible for one of the most insidious conditions of the modern age: an addiction to light. Anybody building an office block, hotel or house instructs their architect that their building must be 'flooded' with light. Or 'inundated', or 'pooled'. Glass allows us to wash our architecture clean in the light of the sun and scour our souls. Forget brick, harbinger of gloom.

Unless you live in a listed building, of course. Or in a conservation area. Or in one of the several million Georgian, Victorian and Edwardian homes in Britain with modestly sized windows. Traditional homes are often gloomy in parts, not least because we hang curtains, fit shutters and put up blinds, partly for privacy, but partly in an attempt to keep the heat in the building. My own house has tiny windows set into stone walls half a metre thick. This has resulted in an addiction to gloom.

To make matters worse, the conservation culture that pervades Britain is so violently opposed to fitting energy-efficient double glazing to our listed buildings that we're all forced to hang curtains made from old duvets and candlewick bedspreads.

I do have a lot of sympathy for the conservation viewpoint, however. One of the principles underlying conservation theory in this country is that of minimal intervention: replace only the essential. A properly maintained Victorian terraced house with its original front door, cast-iron rainwater goods and fine sash windows is a handsome thing. A rare breed these days in your average street full of bastardised mutant houses. Moreover, if you've ever stood in a period house that's been fitted with uPVC double glazing, you'll know that the frames often leak and that the plastic is so weak and flimsy the only way the window stays in place is by beefing up all the sections of it so that the bit of glass ends up being half the size of the original. When they say 'replacement double glazing' they mean they're going to replace your glass with some thick white plastic that creaks.

So you would think that conservation officers across the land would rejoice at the news that it is now possible, after decades of research, to replace a cracked single pane of glass with a highly efficient panel of super-micro double glazing. A panel so finely detailed and slim (at 10 or 12mm thick) that it can be puttied into a Victorian sash or a finely carved Georgian lamb's-tongue glazing bar and not be noticed. A panel that can be heat-treated to give a subtle warp to the surface to mimic the hand-blown crown or cylinder glass of yesteryear. A panel so brilliantly made that it turns a cold, inefficient period window into one that is condensation-free and that meets current building regulations – with a U-value of just 1.8.

EDINA VAN DER WYCK; THOMAS STEWART

left Ian and Sophie Cooper used Slimlite double-glazing units to restore the windows of their former mill storehouse in Somerset

A wall's average U-value is 0.3; single pane glazing has a miserable value of between 5 and 6. This new double-glazing system, invented by a man called Jim in Edinburgh and sold by his company, Slimlite, matches the performance of standard double glazing thanks to its metal coated surface and a mixture of krypton and xenon gases in the tiny gap. In larger spaces these gases start to form convection currents, breaking down their insulating usefulness, but in a small void they're highly efficient.

But such carbon-conscious information has no appeal for conservation officers and the likes of English Heritage inspectors. There is currently a wall of rejection of this new technology in this country as the conservationists hide behind the duvet curtains. I agree that wherever possible the original fabric of a building needs to be conserved and retained. But globally we face climatic changes in the next hundred years that will affect both how and whether we value our historic environment, and threaten the structural integrity of many of our old buildings. Better to intervene now and make them more energy efficient by draughtproofing, insulating and double glazing them with this system, than allow them to contribute to global meltdown. Edinburgh has taken a lead in allowing the retrofitting of Slimlite to historic buildings; Bath Council has approved it for Ian and Sophie Cooper's historic industrial building (featured on *Grand Designs*, see page 66), but that's not enough.

Two per cent of our housing stock is listed. Piffling, you might say. But every time a conservation officer works with a homeowner to make a historic home more energy efficient it informs local practice. In fact nearly 20 per cent of all our homes were built before 1918; 38 per cent were built before 1944. And when you realise that the vast bulk of the homes we'll be living in in 2050 are already built, you'll understand why we need to think creatively about adapting our homes to low carbon use. Which is why *Grand Designs Magazine* is launching the Great British Refurb campaign, working with the UK Green Building Council, the Energy Savings Trust and WWF. Watch this space.★

Slimlite Double Glazing Co (0800 316 6031; slimliteglass.co.uk)

Slimlite double glazing

Advantages

✦ Slimlite's double-glazed units are just 10-12mm thick, which allows them to be fitted to most existing single-glazing openings

✦ The units offer excellent insulation due to the thermally efficient inert gas (xenon or krypton) sandwiched between the two panes of glass

✦ Low-emissivity glass used for the inner pane reflects heat back into the room

✦ Replacing one square metre of single glazing with low-E double glazing will give you a saving of approximately 90kg of carbon dioxide emissions per year by cutting down on heat loss, which will, of course, save you money on energy bills

Disadvantages

✦ They are not yet widely accepted by conservation officers for use in period buildings

✦ The cost may put you off - Slimlite double glazing costs around 60-70 per cent more than standard units. Prices start at £34 for a small (0.3sqm) window