

HOT AND BOTHERED OVER PART L?

John Stamp discusses the glazing options available for the external envelope of buildings subject to the new Part L regulations.

Any designer, contractor or manufacturer involved in the provision of building envelope systems will be familiar with the ever-changing requirements of Part L of the Building Regulations.

No other piece of construction industry legislation tests the resourcefulness and adaptability of industry professionals quite as much as Part L. As the piece of paper setting out the requirements for heat and energy conservation in buildings, Part L sits at the interface between the construction site and a whole raft of Government carbon reduction measures.

Part L is continually being revised to keep the industry moving towards long-term goals of energy efficiency and emissions reduction. The latest revision, which is due to come into force this October, cuts the permissible carbon emissions from all new buildings by 25% from the level currently permitted under the previous (2006) revision.

For architects and designers, the task of producing designs which conform to these ever-tightening constraints is a major challenge that requires careful and complex calculations.

Luckily, there are tools available to help designers achieve compliant details. Software such as the Government's SAP2009 program and the Simplified Building Energy Model (SBEM) developed by the BRE have the 25% carbon reduction target built-in.

Manufacturers of materials and building systems who want to ensure their products are specified need to ensure those products are compatible with the designs developed to meet the requirements of the revised Part L.



In the housing sector, the requirements of Part L are inextricably linked with the Code for Sustainable Homes. The Code comprises a 1 to 6 rating system to measure the overall sustainability performance of a new home. Each score represents the level of improvement over the standard of energy efficiency set in Part L of the 2006 Building Regulations.

Code Level 1 equates to a 10% improvement, Level 5 is 100% improvement and Level 6 means zero carbon emissions. The new Part L with its 25% improvement target equates to Code Level 3 which becomes mandatory for all new homes in October.



In the commercial buildings sector, cladding and glazing manufacturers have long recognised the need to improve the thermal performance of their products. Over the years, they have explored every conceivable way of reducing heat-loss through their products.

High-end, triple-glazed curtain walling systems using low-emissivity glass are already highly energy-efficient. With the current technology available, any improvements can only be more of the same, which is larger cavities, more layers of glass. The only other area where improvement may be achieved is the frame itself, which in a typical curtain wall panel might amount to less than 3% of the total surface area.

Consequently, the scope for energy efficiency improvements in curtain wall systems is limited. Windows however, are quite different. Here the frame accounts for up to 25% of the system's total surface area and the potential for reducing heat losses is far higher.

The key here is to try to reduce the frame/glazing ratio by designing ever-slimmer glazing bars and at the same time improve the performance of thermal breaks. These two strategies are of course conflicting – but nobody said it was going to be easy.

What is easy (or at least easier) is the specification of windows by designers. Previously obliged to juggle calculations involving U-values and SAP ratings, specifiers can now use Window Energy Ratings to choose the most appropriate design for their building.



Introduced by the British Fenestration Ratings Council (now part of the Glass and Glazing Federation) in 2004, this system is similar to the energy rating method used for white goods. Instead of having to calculate the window's U-value and build that into the design, specifiers now had an off-the-shelf solution. A window with an A-B rating will meet the new Part L and generate BREEAM points into the bargain.

Meanwhile, manufacturers continue in their quest for more energy-efficient products. The latest designs incorporate multi-chamber polyamide thermal breaks to reduce thermal bridging and plastic or stainless-steel strips instead of aluminium in glazing units to cut thermal transfer.



This October will see a number of new products come on the market as the revised Part L makes its debut. Thermal efficiency is still the best route towards lower energy consumption and lower carbon emissions, despite the protestations of enthusiasts for micro-renewable energy.

Achieving Level 6 of the Code for Sustainable Homes – the zero carbon target – by 2016 is expected to require the incorporation of such technologies as heat recovery systems, solar collectors and even micro wind turbines.

But the belief held by some developers, that more rigorous improvements in thermal efficiency can be ignored in favour of trendy wind-turbines or photovoltaic panels, has been explicitly squashed by the latest changes to Part L.

The message is clear - sort out the heat loss first, then add the bells and whistles.

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