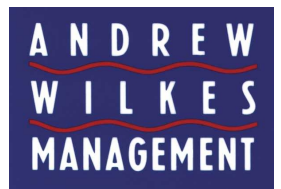


# NEWS FLASH



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**GIVE ENGINEERS THE TOOLS - it's not just us saying these things**

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The morass of regulation is hindering green building design, say young engineers Mark Richardson and Damian Markham-Smith

The impetus to create 'greener' buildings makes this a time of challenges and opportunity for young engineers. But, as enthusiastic graduates at the start of our careers, we seem to have entered a period of increasingly confused and entangled requirements.

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National guidelines, government and council targets and vocal, highly influential guidance from a growing group of NGOs such as the BRE produce a cacophony of information and opinion. On the one hand we have ambitious targets and media-driven visions of zero carbon developments. On the other, there are the realities of commercial budgets, which cannot deliver on such grand promises.

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This is not what we expected from engineering. We need less haste, more speed and to keep things simple. Part L of the Building Regulations is a primary tool for reducing CO<sub>2</sub> emissions. It should be a clear, concise route for achieving this, and it should ensure design is based on overall common sense. In reality Part L isn't bad – it's in the detail of its implementation that problems arise.

For commercial buildings, Part L relies heavily on the Approved Calculation Method database. But this fails to represent real buildings, a situation highlighted by regular changes to key data, in some instances wrong data, and poor convergence with real building energy data.

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"Our current framework for delivering on climate change is badly conceived and driven locally by the ill informed"

Yet if you choose the SBEM route, the engineer is relegated to an 'operator' dependent entirely on system intelligence, which most engineers would agree is just not there. And consider school design guidelines; they do not even use the same method or targets for compliance with overheating as Part L. You cannot produce Part L accredited output for a school!

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Local government planning for sustainable design and supplementary planning guidance are intended to reduce CO<sub>2</sub> emissions further. You would expect a harmonised approach – a common-sense 'energy hierarchy' worded in the language of CO<sub>2</sub> emissions. Yet some councils have mandatory renewables, some exclude CHP, some base the method on energy, not carbon emissions, and many show an incomplete understanding of the issue. This has counterproductive consequences, such as:

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- energy efficiency measures being omitted to pay for photovoltaics;
- reduced fabric U-values and air-tightness, which leads to a biomass boiler heating a sieve;
- a renewables policy where electricity generating technologies would dwarf the building, leaving only thermal solutions as possibilities;
- a fixation on renewables even when, for example, a gas-based heating solution without renewables has a lower carbon footprint than an electrical one with 30% renewables.

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This is not good engineering, not sustainable design and not good business. Are we creating a false and unstable micro-economy in renewables technologies? Would it not be better to set a target for CO<sub>2</sub> reduction of 10%, 20% or 30% better than Part L targets? Designers can then make the most effective design choices.

Even our homes are not safe from this confusion. Domestic buildings rely on the standard assessment procedure (SAP). Fine for typical houses, this is wholly inadequate for assessment of designs for the higher rated code 4, 5 or 6 homes under the Code for Sustainable Homes. Yet the code requires an SAP calculation, and enquiries concerning the use of dynamic thermal modelling for better assessments are curtly rejected by the BRE.

Rather than rushing forward with crowd-pleasing new targets and plans, the most effective action the government could take would be to stop, take a breath, and reform the morass of initiatives into a more practical whole. Please, we need common sense and rationalisation, now.

*Mark Richardson and Damian Markham-Smith work for Gifford as engineer and senior engineer respectively. These are their personal opinions*