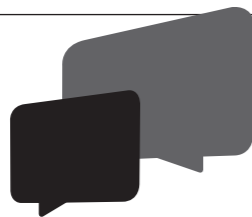


# ON THE TABLE



## Regulatory Compliance

The industry is increasingly faced with tighter and more demanding Regulation: having already undergone compulsory CE Marking, it is now also anticipating a further strengthening of Part L of the Building Regulations, although this could be pushed back several months. Our panel looks at the key issues when it comes to adhering to and anticipating standards across the supply chain, in what remains a tough market.



**Karl Myhill**  
Director, Woods  
Hardwick Architects &  
Civil Engineers



**Rob Warren**  
Technical manager,  
Celotex



**Geoff Edgell**  
Director and principal  
consultant, Ceram



**Graham Wright**  
Legislation specialist,  
Daikin UK



**Tony Walker**  
Technical manager,  
specification,  
Johnstone's



**Andrew Minson**  
MPA executive director,  
British Precast

**Q** Have the changes to the Building Regulations introduced in April this year successfully "reduced the burden of regulation on the industry," as was promised before the change, e.g. by simplifying the language?

**KM** The changes to the Building Regulations have not reduced the burden of regulation on the industry, but they have made the standards more flexible. The regulations have begun to support innovation, as building practices, technology and construction techniques constantly evolve. It is important to make sure that building regulations are fair, efficient, up to date and effective.

As architects we feel that the regulations introduced in April improve the overall quality of buildings and improve the effectiveness of the Building Regulations system but do not reduce any unnecessary burdens on those who use the system as was promised.

**TW** From a surface coatings perspective, the burden of regulation is beginning to increase as more previously unregulated products come into view. To compound this, the regulations appear at the moment to be creating grey areas and uncertainty if a product is or is not in scope.

**Q** What impact has the new Approved Document 7, which comes into force on 1 July 2013 as part of the Construction Products Regulation, had on the industry?

**KM** The significant change is in the acceptable methods for demonstrating a material

or product's fitness for purpose; by applying a CE marking under the CPR to a harmonised European Standard or European Technical Approval. Mandatory CE marking will make it easier for designers to demonstrate the suitability of a product, provided the declared performance of a CE-marked product matches its intended use.

**RW** It has been useful to help highlight the requirements of CE marking for construction products and also defining requirements of workmanship at a time when installation quality under Green Deal and ECO is in question.

**AM** There has been a lot of effort in complying with CE marking, and we at British Precast have helped members navigate through it. We have also reduced the complexity for our members by negotiating an arrangement with Trading Standards. The disappointing aspect is that CE marking does not add any benefit for customer, designer or supplier.

**Q** What is the biggest current challenge in terms of Regulatory Compliance in construction? Is it persuading specifiers of the importance of compliance, in the face of mounting pressure to cut capital costs?

**AM** The biggest challenge remains the constant change; in many respects this is understandable. A means of partly addressing the problem of change was establishing a timeline to 2016 and 2019 for zero carbon. This meant we all knew where we were

headed, but with the delay in Part L the timeline is not being adhered to.

**KM** In the current work we are undertaking the biggest pressure is meeting the client's requirements to reduce capital cost and still improve value for money. We try to incorporate this by ensuring the project team clearly defines the needs of the client, eliminates unnecessary expenditure and obtains the optimum balance between cost, time and quality. The challenge always is to locate and source an appropriate quality of product at a reduced budget.

**RW** It is not specifiers that need to be persuaded, as they have to comply with the calculation tools and targets provided, for example SAP and SBEM. The biggest challenge is constructing buildings as designed by the specifier, and realising the impact of construction material substitution and deviations from installation guidelines.

**GW** It is simplistic to suggest that regulatory compliance will result in increased costs. While capital costs could be perceived as an issue, it is our job to educate specifiers about the whole life benefits more efficient products can bring. Due to the ever increasing energy efficiencies of HVAC systems, running costs can be reduced significantly, thus reducing payback periods. If energy prices continue to rise, these cost savings will increase further. To illustrate the point, a VRV IV heat pump system was recently installed in a large homeware store in Warrington. The energy savings predicted over the first year (compared with a VRV



The Tesco Eco Store in Corby, Northamptonshire, was designed by Woods Hardwick with increased U-values from other trial stores

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*Rob Warren, Celotex*

III heat pump) based on a price of 10p per kW was £31,645. This higher spec system is predicted to pay for itself in fewer than five months. After that time the reduced running costs will impact directly on the company's bottom line.

**TW** In a lot of instances compliance does impact on cost, however specifiers cannot afford to ignore compliance. Non compliance is not in their interest as this will obviously effect the development of their project pipeline and credibility. There will always be pressure, especially in today's market, to manage budgets tightly, but never at the cost of meeting regulations and legislation. A good example of this would be flame-retardant systems which help building owners and specifiers to meet legislation

and building regulations such as Approved Document B.

**Q** Is BIM incorporating regulatory compliance at present, in terms of foreseeing whether a model will comply in advance with Building Regulations?

**RW** Level 3 BIM has the ability to eventually include compliance tools for Building

Regulations. As BIM is currently in its early stages of adoption this is something that we look forward to seeing develop.

**TW** Although BIM is being used within the construction industry, it is in its infancy and is a progressive tool that will no doubt develop to consider and apply current and future regulations. With regards to decorative paints, it's currently not one of the key

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drivers or implementations within BIM. **AM** BIM is a natural progression from 3D models and it would have developed anyway, but with Government mandating its use, BIM will be used on more projects sooner. I am not aware of BIM having a significant impact on regulatory compliance. We will see BIM's advantages and burdens in other aspects. There are opportunities for suppliers to differentiate themselves through BIM, but most if not all the advantages are at the client end.

**Q How is the industry currently in terms of sharing information, both at the supplier and specifier end, when it comes to innovative ways of meeting Regulations on projects?**

**GE** The introduction of the CPR is having an enormous effect on suppliers; information needs to be supplied as Declarations of Performance, and to support CE marking. Manufacturers are therefore providing information in a relatively standard form. This information is not necessarily what the user needs, so for example, it is mandatory to provide information on the load capacity of lintels and the load which causes a specified deflection, whereas the user is familiar with and uses 'Safe Working Loads'. Manufacturers are therefore balancing the requirements of the Regulation with the traditional ways in which the market has operated. This means paying much greater attention to communications.

**KM** We have found that there have been a mixed views from different manufacturers as some are willing to engage and provide product information and undertake development work to aid and come up with innovative ideas and share their experiences whereas others will look no further than the standard product. The reference books and internet are predominantly directories; just a categorised list of resources; in this case, of building product manufacturers. We believe specifiers deserve innovative tools, real functionality, to help make the product sourcing and decision-making process easier. This could be achieved by having a national database of products with information, statistics, and technical process information on various products.

**RW** Manufacturers who launch innovative solutions to meet Building Regulations have to share information with specifiers in order to generate business, and the success of this depends on marketing campaigns and budget available.

**TW** We're always keen to share information at all levels of decision making within specification and where possible we will develop

products that are innovative and contribute to meeting regulations and compliance, such as flame retardant systems.

**Q Are Psi-values now in greater focus than U-values, in terms of achieving energy-efficient buildings? If so is this being driven by any specific current Regulations?**

**RW** No. U-values are still the metric used to gauge compliance of Building Regulations within the industry.

**KM** The Building Regulations relate to the average performance of specific elements. As standards improve, the significance of local areas of reduced insulation (thermal bridging) e.g. at joints and around the edges of window openings, and gaps in the building envelope leading to air leakage becomes increasingly important in terms of contribution to overall heating and ventilation losses

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*Karl Myhill, Woods Hardwick Architects & Engineers*

from the building. Average overall standards (U-values) are given in Building Regulations for instance, but the proportion of the overall heat loss due to thermal bridging in 'average' buildings built recently is probably between 10% and 15%. The figure can be substantially higher with certain construction systems and in dwellings with particularly poor detailing.

A Psi-value is mainly a value of adjustment during the calculation of energy loss of building surfaces. It quantifies the additional energy loss per degree Kelvin and linear metres, which wasn't taken into account with the simplified approach of the energy loss calculation using U-values and areas. The calculation of the Psi-value therefore depends strongly on the calculation method of the simplified approach. These are defined in international and national standards. Therefore the same construction can have different Psi-values, depending on the national standard for the calculation of

transmission losses! Therefore U-values and Psi values are required in tandem in terms of achieving energy efficient buildings, and one does not have a greater focus than the other.

**Q Are you seeing any signs of a greater focus on embodied energy of products in future regulations?**

**GE** There is of course a lot of talk about carbon footprinting, and hence the sensible assessment of the working life of products, however the emphasis will only fully impact on products when it becomes mandatory to provide energy performance declarations as part of standards. This will of course be only a first step, as a full recognition of sustainability will require the likes of water footprints and real resource efficiencies to be identified.

**TW** The latest signs are that we are moving beyond demands for embodied energy measurement to a complete "cradle to factory gate" life cycle analysis used to populate an Environmental Product Declaration. For many schemes in continental Europe this is now a pre-requisite. DEFRA is now recommending business to target the following five parameters: air quality and emissions, water, biodiversity and ecosystem services, natural materials and waste. There are also examples of legislation in mainland Europe which focus heavily on interior air quality. We anticipate that the use of environmental product declarations will increase as awareness grows. It may even be that specifier demand will be an even greater driver for change than legislation.

**KM** Embodied energy is the sum of all the energy required to produce any goods or services, considered as if that energy was incorporated or 'embodied' in the product itself. The concept can be useful in determining the effectiveness of energy-producing or energy-saving devices, or the "real" replacement cost of a building, and, because energy inputs usually entail greenhouse gas emissions, in deciding whether a product contributes to or mitigates global warming. Greater emphasis is being applied within the BREEAM New Construction scheme for buildings to demonstrate compliance with this methodology in terms of selection of materials; I don't see it being long before a national standard is introduced for developments to comply with.

**RW** We know it is being considered, however there are no indications that a greater focus will be realised anytime soon. **AM** The pendulum swings between embodied and in-use energy, but Paul Morrell, the former chief construction advisor was absolutely clear – it is both together that

matters i.e life-cycle energy. By simplistically focusing on one or the other, nonsense conclusions are drawn. For example, we would never insulate our houses if we focused on embodied energy, because without the accounting for in-use benefits of insulation, there is a lot of embodied impact that fills voids. In terms of concrete, the current British heat wave is another reminder of the cooling benefits of thermal mass. Thermal mass also reduces energy for heating in the winter. These operational energy savings are far more significant that the additional embodied impacts from concrete products which amount to only 4% or 5% in housing. The life-cycle energy – embodied and in-use combined – is what needs to be considered.

**Q Is anything similar to the Code for Sustainable Homes being introduced for refurbishments and redevelopments – is it needed, given that this is likely to remain the main stream of work in the industry, to drive quality? A BREEAM standard was removed to be in the works.**

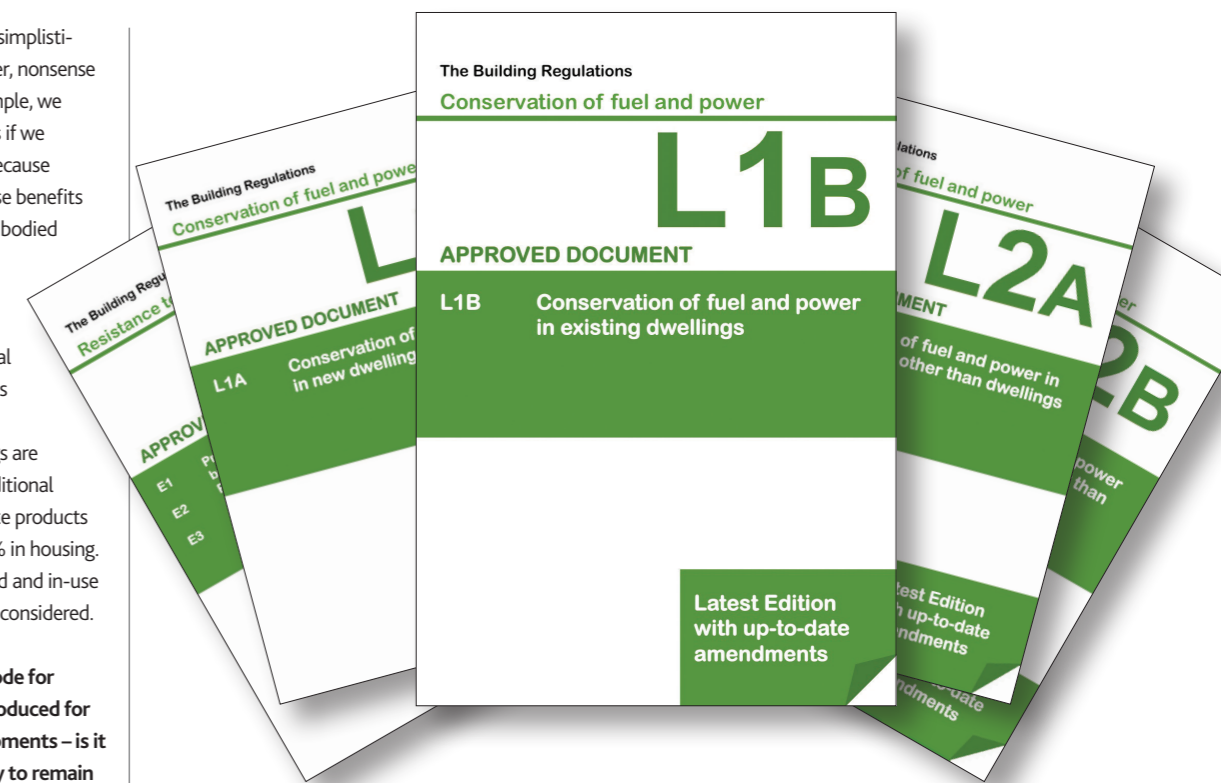
**RW** A Code for existing homes has long been discussed, and with the need to retrofit one home per minute between now and 2050 to meet climate change targets, a retrofit specification would clearly be very useful to ensure build quality and energy performance.

**TW** One we can highlight is the recent RICS SKA initiative that considers three set criteria for paint, of which one is the European Ecolabel – the premier EU environmental accreditation. Stringent test standards are used to assess the product's environmental impact, from raw materials, to application and performance.

**KM** BREEAM is the industry mark of best practice for sustainable refurbishment and fit out. Projects currently seeking certification can use either BREEAM 2008 for fit-out and refurbishment or BREEAM New Construction 2011 for major refurbishment.

BRE Global has advised that it is currently developing a new stand-alone scheme for assessment of non-domestic building refurbishment titled 'BREEAM Non Domestic Refurbishment 2014'. This will provide a dedicated scheme for non-domestic refurbishment and fit-out, running alongside BREEAM New Construction and BREEAM In-Use. The scheme is targeted to be live in early 2014.

BREEAM Domestic Refurbishment, introduced last July, provides a design and assessment method for sustainable domestic refurbishment projects, helping to



2013 has seen further amendments to various Parts of the Building Regulations

improve the sustainability and environmental performance of existing dwellings in a robust and cost effective way.

**Q Can you pinpoint any recently developed products which represented a specific, tailored response to addressing a specific regulation?**

**GW** Daikin launched its Sky Air range of seasonally efficient light commercial air conditioners not only to meet new ErP legislation but to anticipate further tightening of the law. Our new VRVIV heat pump for commercial air conditioning, and Altherma LT Split air-to-water heat pump, are also seasonally efficient to meet stricter legislation. **KM** We used Monodraught windcatchers on two recent projects; the technology provides natural ventilation without any moving parts. Using compartmentalised vertical vents, fresh air is brought into the room and stale warm air expelled using the natural effects of the wind. The second example I would give is SolarWall technology, a solar air heating system that heats building ventilation air and improves indoor air quality. SolarWall systems deliver huge life-cycle cost savings and are designed to require no maintenance over their 30+ year lifespan. They displace 20-50% of the traditional heating load and corresponding GHG emissions.

**AM** Responsible sourcing is a huge success story in the concrete sector. Government, in its 2008 sustainable construction strategy, targeted 25% products to be responsibly

sourced by 2012, and the UK concrete supply chain has delivered 92% of its products as responsibly sourced. Responsible sourcing is in the Code for Sustainable Homes and should be more widely seen in the regs. It recognises what suppliers are doing and gives a simple means of specifiers achieving it. **RW** Our plasterboard thermal laminate boards GS5000 and GD5000 were launched to offer thin solutions specifically in hard to treat properties for the Green Deal and ECO programmes.

**Q Is there a danger that the domestic Renewable Heat Incentive, now finally confirmed to begin in spring 2014, will shift the balance back to renewables away from focus on building fabric?**

**KM** The scheme will be for consumers looking to replace their current heating system with a supported renewable heat technology, but the proposal also states that recipients would need to have installed thermal energy efficiency measures (excluding solid wall insulation) which means looking at the fabric of the building prior to installing a renewable technology.

Therefore we believe that renewables and building fabric will go hand in hand for consumers wishing to be eligible for the RHI. **RW** Part L 2013, Green Deal and ECO all focus on the importance of the fabric, so as long as they deliver then other complementary incentives around renewables are welcome to support the drive to reduce carbon. **BP**