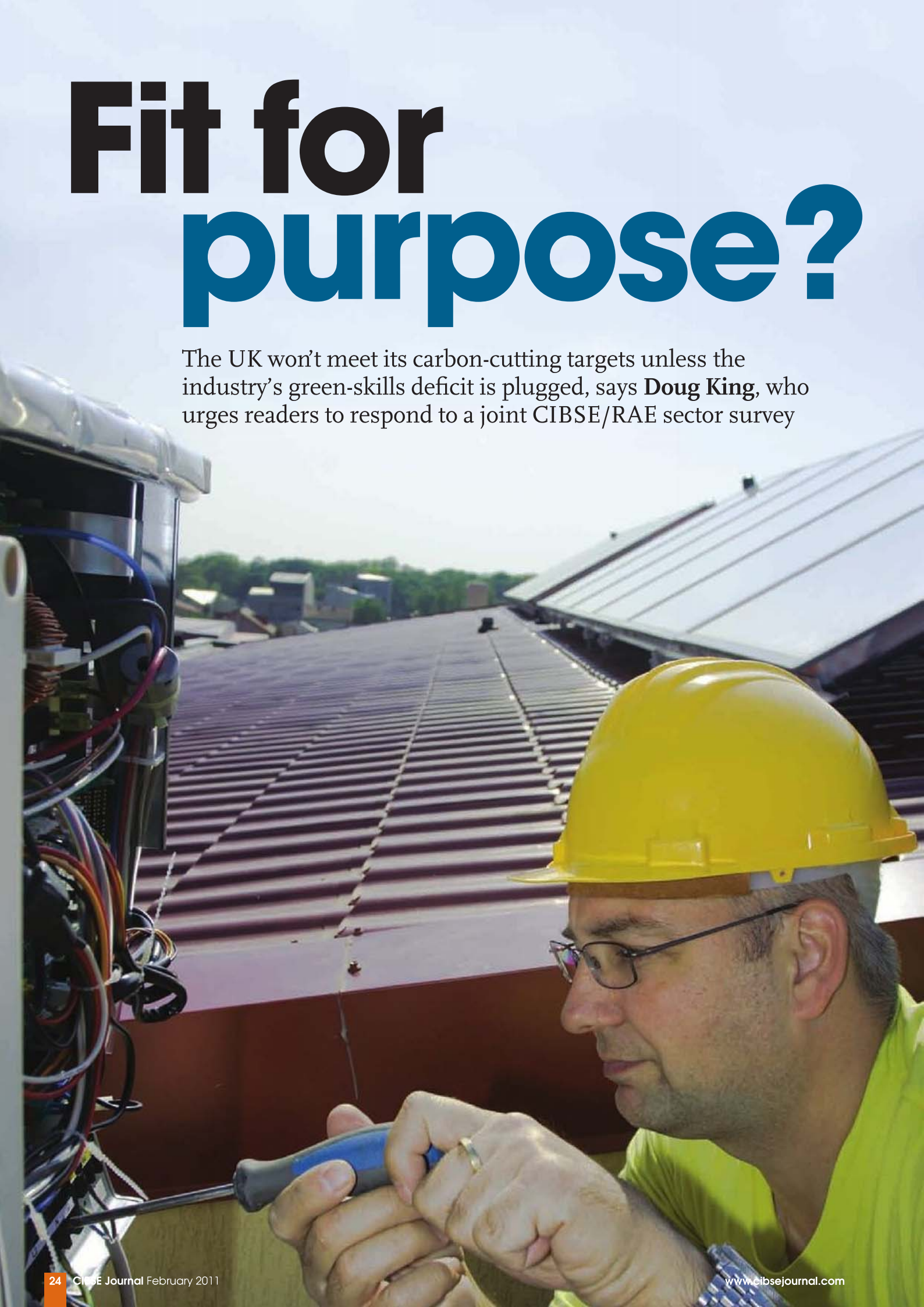
Fit for purpose?

The UK won't meet its carbon-cutting targets unless the industry's green-skills deficit is plugged, says **Doug King**, who urges readers to respond to a joint CIBSE/RAE sector survey



It is well known in our industry that buildings account for around 45% of UK carbon emissions, whilst our national goal is to achieve a reduction in emissions across the economy of 80% by 2050. Recent governments have set out a range of strategies to achieve emission reductions, but one wonders whether they have considered the impact of their decisions and the industry's ability to deliver against them.

Clearly it will be vital to the future health of our economy to address the reduction of carbon emissions from the built environment in the most cost-effective way, and not simply to adopt the path of least resistance. Warm Homes, Greener Homes, the government strategy for cutting carbon emissions through eco-upgrades in existing housing, sets out a plan that could potentially cost up to £200bn between now and 2050 in this sector alone. Further, the Carbon Trust, in *Building the Future Today*, estimates that retrofitting the non-domestic sector could require investment of £50bn between 2020 and 2050.

It has been repeatedly demonstrated through contemporary projects that reducing energy demand through energy efficient design costs little more than conventional, inefficient design; and the scale of reduction that can be achieved by these means substantially exceeds that which could be generated by expensive onsite renewables.

However, we have already seen problems in implementing Part L 2006 due to a lack of awareness of how to achieve fabric insulation and air tightness standards, both among those who build and those that are supposed to enforce the regulations. Now evidence is starting to emerge that the skills required to achieve zero carbon new buildings, or even the eco-upgrades of existing stock, are simply not prevalent in our industry as it stands.

Low Carbon Housing: Lessons from Elm Tree Mews, the study of the Joseph Rowntree Foundation's pilot project for CSH Level 4 housing (see December *Journal*, page 7) highlights numerous difficulties in achieving low carbon housing. These range from unjustified claims for product efficiencies by manufacturers to the failure of designers to follow through the consequences of their decisions.

Similarly, in *Getting Warmer*, the report on the first large-scale field trial of domestic heat pump installations, the Energy Savings Trust identifies the importance of appropriate design, good installation and commissioning, without which many systems were found to be operating at only a fraction of the expected efficiencies.

The challenge of reducing fossil-fuel dependency in the built environment is vast and will require far more effective policy and a dramatic increase in skills and awareness across the construction industry. It will also require a major rethink about supply chain relationships.

We will need to see much closer collaboration between manufacturers, consultants, installers and operators in the future to establish a chain of custody for energy efficiency. We must ensure that buildings and systems are designed and installed to allow energy consuming components to operate at their maximum efficiencies.

Warm Homes, Greener Homes also estimates that upwards of 65,000 new jobs will have to be created to provide the domestic eco-upgrades required. Clearly all these people will require a thorough training in low carbon skills. As these retrofits are new work for the industry, these jobs will be in addition to the annual recruitment of 48,000 new people that the Construction Skills Network (see its *Blueprint for UK Construction Skills 2010 to 2014*) estimates will be required for each of the next four years to support an industry coming out of recession.

Given that during this period we will see the implementation of both the 2010 and 2013 revisions to Part L, presumably these 192,000 new workers will >

Above and facing page: the key challenges for the built environment sector are to dramatically increase the skills set, and to establish much closer collaboration across the supply chain

also need to be skilled in low carbon construction, as will a significant proportion of the existing 2.3m people presently employed.

Clearly there is presently a vast gap between the government's ambitions to make dramatic cuts in UK carbon emissions and their understanding of the range and quantity of new skills that will be required to deliver these cuts. This represents a huge challenge for both construction businesses and training providers.

Government's failure to recognise the need for such a vast expansion in low carbon skills is largely due to the industry's own lack of understanding in this area. The sector skills councils are making some inroads into filling this knowledge gap, but they only address their specific areas and so lack an overview of the challenge.

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Work by SummitSkills, the sector skills council for building services, has identified that the growth in low carbon skills is predominantly related to training on the installation of specific technologies such as micro-generation.

Furthermore, as the industry has not itself identified the skills required to address low carbon construction, the institutions and educational establishments are not sufficiently geared up to provide new skills. Whilst the accreditation bodies that represent the professional institutions – CIBSE and the RIBA – promote sustainability, the specific design and analytical skills that are essential to achieving cost-effective low carbon designs are rarely covered in university courses.

During a discussion at a recent CIBSE council meeting, it was felt that at present there are probably not even enough people in the UK industry with sufficient knowledge of low carbon construction to train all of the people now needed to form the new low carbon workforce that we need.

Without a clear plan to tackle low carbon in construction, it is little wonder that, to date, the majority of UK government funding for low carbon skills and training has been focused on supporting industrial approaches. Moreover, these approaches almost exclusively address the supply side of the equation, such as carbon capture and storage and off-shore wind power – which are some of the most expensive ways of reducing carbon emissions compared with energy conservation in the built environment.

To try to address this gap, CIBSE, together with the Royal Academy of Engineering and the University of Bath, is presently engaged in a skills survey of the construction industry. The survey, to be conducted by Ipsos MORI, aims to establish the extent of skills that are presently available to deliver low carbon construction and the additional skills that will be required to deliver our ultimate commitment.

This is the first time that such a comprehensive survey has been attempted, and the results should be of great value in determining future directions for institution policy, training and education and to inform government policy on the low carbon built environment.

The survey will be sent to all practices registered in the CIBSE Directory, CIBSE Patrons and a range of other consultants and contractors. If you receive a survey questionnaire from Ipsos MORI in the next couple of months, please do make an effort to provide a complete and accurate response.

If you don't receive a questionnaire, but have specific experiences relating to low carbon skills which you think should be included, please contact the author at the email address below. The better the quality of the responses we receive, the more persuasive will be the arguments that we can put to government to support the vital work of upskilling our workforce. ●

WEB LINKS

www.cibse.org

www.raeng.org.uk

For Low Carbon Housing: Lessons from Elm Tree Mews, visit the Joseph Rowntree Foundation at **www.jrf.org.uk/publications**

Blueprint for UK Construction Skills 2010 to 2014, visit the Construction Skills Network at **www.cskills.org/supportbusiness/businessinformation/csn**

Building the Future Today, visit the Carbon Trust at **www.carbontrust.co.uk/publications**

UK government departments: **www.decc.gov.uk www.communities.gov.uk www.bis.gov.uk**

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