

2/EXECUTIVE SUMMARY

The need to deliver a more sustainable built environment is one of the biggest challenges facing the construction industry. It is a challenge that impacts on the entire supply chain from funder to end user and will become progressively tougher over the next seven years. This white paper examines the drivers behind this agenda, the regulations and incentives being used to realise it and how the industry is responding. The ability of firms to understand and respond to these challenges by delivering better performing buildings cost effectively is a key requisite for survival in today's tough market.

The government has set the target of reducing carbon emissions 80% by 2050 compared with a 1990 baseline and says emissions from all buildings will have to be reduced to practically zero. As part of this trajectory the government has set a goal of requiring all new buildings to be zero carbon by 2019. These demanding targets are being realised by increasingly onerous regulation, planning requirements and for public sector projects funding conditions. Each iteration of Building Regulations ushers in bigger carbon reduction targets that are matched in turn by corresponding changes to these other requirements.

Some large organisations have aligned with this agenda. Sustainability is perceived as a key element in corporate social responsibility reporting and is often expressed in terms of minimum environmental performance targets applicable to buildings. Many large developers are responding to occupier CSR policy by ensuring new developments perform significantly above current Building Regulations. There is no premium associated with low energy buildings but evidence shows the lettable value of less efficient buildings is declining. Many large developers exceed current energy standards to protect the long-term value of building portfolios.

Organisations that procure and occupy their own buildings often exceed the environmental standards required by regulation. The big supermarkets have

● **Complying with the proposed carbon reduction targets in 2013 Part L will add 1.39% to the cost of a deep plan air-conditioned office, 3.85% to a retail warehouse, 0.92% to a secondary school and 0.43% to a five-star hotel. The most cost effective way of meeting the target for the secondary school was PV.**

● **The additional costs of meeting the upper levels of the code for sustainable homes explains why 37,913 homes have been built to code level 3 but only 34 to code level 6. It costs 5.2% extra to build a three bedroom semi to code level 3 compared with 2006 Part L but 45% extra to code level 6.**

● **When occupiers were asked in a survey for this white paper how satisfied they were with the energy performance of their new buildings 18% described their buildings as inefficient and 35% as good. Buildings with an environmental assessment rating fared slightly better with 12% of respondents describing their buildings as inefficient and 42% as good.**

● **Eighteen percent of developers in the survey have a budget of over a fifth of their annual turnover on their building portfolios to mitigate against energy and carbon price rises and the risks of changing legislation. But 59% are spending less than 5% of annual turnover on portfolio improvements. Developers expect to increase their budgets over the next five years.**

● **When asked if building elements should be assessed for embodied energy content as part of the specification process 80% of specifiers said yes but 31% currently do so. Forty-nine percent said they did not carry out embodied energy assessment because clients weren't interested with 43% saying there wasn't a simple and reliable method of assessing this. Three quarters expect to carry out embodied carbon assessments of building elements in the next five years.**

embraced high standards because strong environmental credentials are perceived to offer competitive advantage and reduce costs. Marks & Spencer says its sustainability strategy, known as Plan A saved it £70m in 2011. Relatively small increases in capital costs can yield big energy performance improvements. Spending an additional 0.26% on a 900 pupil secondary school or 1.6% on a city centre air conditioned office can reduce carbon emissions by 44% compared with 2006 Part L, yielding a positive payback over 25 years.

Although it makes financial sense to build to higher environmental standards only a minority of organisations do so. In a survey for this white paper 75% of occupiers said they don't set minimum environmental standards for the buildings they occupy. In the past the public sector has been responsible for procuring buildings with the highest BREEAM ratings but budget cuts are making this difficult. Very few new homes exceed the regulatory minimum: of all homes built to the Code for Sustainable Homes since 2007, 37,913 of completed homes had a code level 3 rating which is a requirement for social housing funding. Just 34 were built to level 6 with only nine completed by the private sector. Unless homebuyers start paying a premium for more energy efficient homes standards will continue to be almost entirely driven by regulation.

These issues have been recognised by the Department for Communities and Local Government (DCLG) in the 2013 Part L consultation. It proposes a 20% reduction in emissions compared with 2010 Part L for non domestic buildings. According to data prepared for this white paper by Aecom the new standards will add between 0.43% and 3.85% in costs depending on building type, a figure that can be recouped through lower energy bills. The consultation proposes an 8% cut in emissions for homes in recognition of the financial difficulties facing housebuilders.

Meeting the next iteration of Part L in 2016 will be much more demanding as

existing policy states all new homes must be zero carbon after this date. It will cost housebuilders an extra 14% to build homes to 2016 Part L compared with the proposed standards in the 2013 version. If homebuyers will not pay a premium for zero carbon homes the additional costs will either come out of housebuilders profits or will depress residual land values - rendering many developments unviable.

The impact of 2016 Part L on non domestic buildings will depend on the 2016 carbon reduction targets. But it gets progressively more expensive the nearer to zero carbon the targets get. It would cost an additional 12% to reduce regulated carbon emissions from a school to zero and an additional 7.4% to reduce emissions from an air-conditioned office compared with 2006 Part L. This could mean developers are less likely to exceed Building Regulations particularly on tight sites where there is limited space for PV panels.

This is already happening in budget constrained sectors. Some Building Schools for the Future (BSF) teams were offering to build schools to BREEAM 'Excellent' for the same cost as a minimum 'Very Good' to win work. BREEAM has been updated to bring it into line with 2010 Part L, which means buildings need to use 25% less energy than the previous version of BREEAM to achieve an 'Excellent' rating. Achieving BREEAM 'Excellent' ratings without a corresponding budget increase is extremely challenging and means new schools are much less likely to exceed the regulatory minimum.

The government could put back the zero carbon targets if it perceives these as placing an excessive burden on the industry. It has already watered these down by changing the definition of zero carbon and removing the obligation on housebuilders to provide zero carbon energy for domestic appliances. And the carbon reduction targets in the 2013 Part L consultation are lower than previously published. If the economy does not pick up by 2016 the government could delay the

implementation of zero carbon housing until 2019.

Reducing emissions from existing buildings is an important part of the government's strategy. The Green Deal is a financing mechanism which funds the costs of energy improvements to existing buildings and is paid off by savings on energy bills. A big barrier to Green Deal take up is property owners do not benefit immediately from the improvements. They have to suffer the disruption of having the work done and then wait for up to 25 years to start enjoying

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direct savings on bills. Some local authorities are interested in using the Green Deal as it enables them to improve their housing stock without affecting their budgets but regulation is being formulated to drive adoption in the private sector.

The consultation on 2013 Part L proposes compelling homeowners to upgrade the energy efficiency of the existing element of their home when building an extension. If landlords don't take advantage of the Green Deal tenants may be able to force them to make improvements using the Green Deal after April 2015. It will be unlawful to let buildings with an Energy Performance Certificate (EPC) rating worse than E after 2018.

The government is determined to leverage the Green Deal as reducing emissions from existing buildings is more critical than low carbon new build because about 75% of homes and 60% of non domestic buildings constructed before 2010 will still be standing in 2050. Incentives are likely in the short term and if these do not work regulation is likely to be used to drive these objectives.

2.1 INTRODUCTION

This white paper provides a comprehensive guide to the complex sustainability landscape that supply chains need to negotiate when designing and constructing the built environment. It provides an overview of government targets and how these are being transposed into regulations. This includes an examination of the proposed changes to Part L of the Building Regulations and the cost implications for four building types. There is also a guide to commonly used environmental rating systems and how these are used as a condition of funding for public sector projects or as planning requirements.

The white paper examines how these regulatory pressures are impacting on clients and their corporate social responsibility strategies, and the corresponding impact on the developer community. This includes surveys of occupiers and developers to establish their sustainability priorities and of building designers to see how these priorities impact on the specification process. The white paper also includes a survey of occupiers to see how they think the industry is doing and there are details of the incentives used to drive improvements in existing buildings.