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ADJACENT PLANNING & BUILDING CONTROL TODAY

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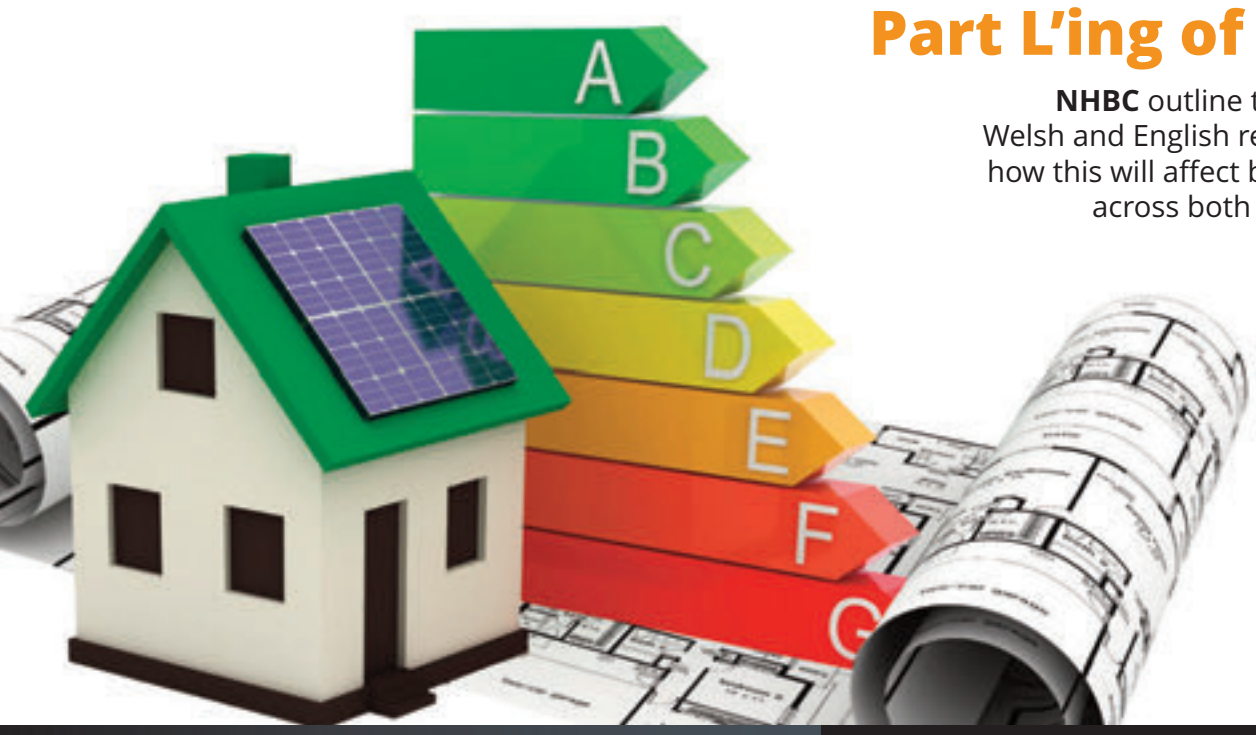

Part L'ing of the ways

NHBC outline the differences in the Welsh and English revisions to Part L and how this will affect builders who develop across both sides of the border...

NPPF – a failure to protect our 'green lung'?

Paul Miner at CPRE highlights their report showing how planning reforms are placing rural England under siege...

A new CDM – a wholesale change

James Ritchie at APS examines the new proposals for CDM regulations and what challenges they present...

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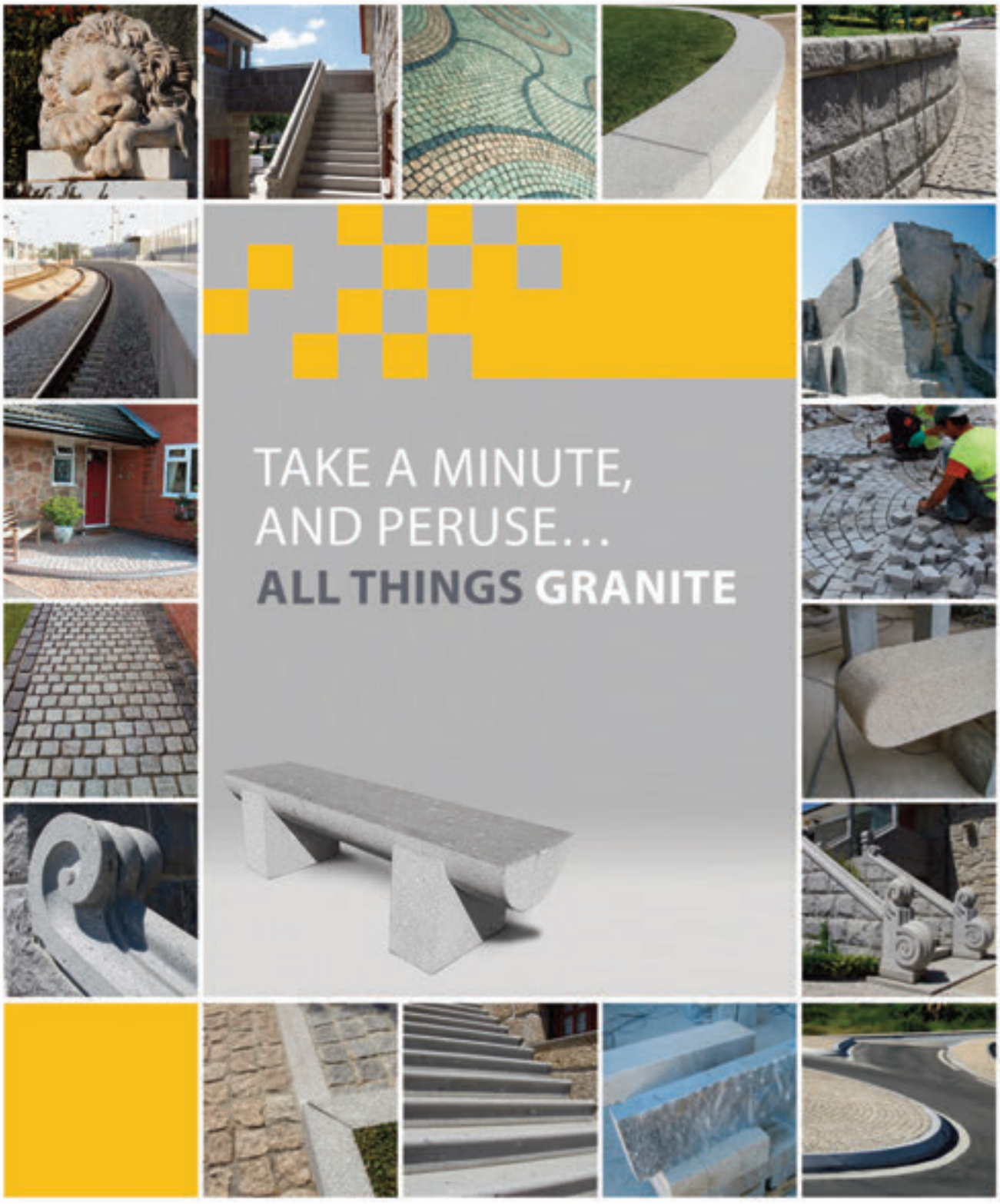

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Foreword

Steve Evans BSc(Hons) MBA C.Build.E FCABE
Building Control Manager
National House Building Council (NHBC)

Welcome to this edition of Adjacent Planning and Building Control Today. When I started in Building Control some 20 or so years ago, the then Head of Building Control asked me at my interview if I liked change. Being young and eager to please in an interview I of course said "yes," and duly got the job.

Now of course I am a weathered building control professional who has worked at a senior level in both the public and private sector, and when I think back over my career I cannot really think of a single year when there has not been some sort of change in respect of the building regulations or the building control system.

This year is no different to any other in my building control career. In England we have the next steps towards Zero Carbon with the changes to Part L (Conservation of Fuel and Power) 2013 which will see a 6% and 9% improvement to new residential and commercial buildings respectively over the 2010 levels. The changes will focus on fabric energy efficiency and efficient services and set challenging targets to achieve the required improvement without requiring additional technology such as renewables.

We also have the outcomes of the Technical Housing Standards Review, which the government intend to implement by the end of this current parliament, i.e. by May 2015. The changes outlined by the government will reduce the scope for local planning authorities (LPA) to set their own standards in areas such as energy efficiency, accessibility and security, but will allow them to set proportions of developments which would be required at each level of the tiered regulations based on local needs, and demonstrated through viability in the local plan process. These additional levels will be enforced by the building control body, public or private, who will inform LPA when completed, who can then discharge the appropriate planning condition. As a high ranking government official remarked "It's building regulations, Steve; but not as we know it".

And then of course we have the forthcoming changes in Wales where the Welsh Government will be introducing their own changes to Part L (Conservation of Fuel and Power) 2014 for Wales, which will see an 8% improvement in new residential buildings across the build mix. The changes to Part L in Wales will also see consequential improvements introduced for existing dwellings where the floor space is extended by adding an extension, loft conversion or garage conversion.

Of more significance is the introduction at the end of April 2014 of the requirement to fit sprinklers in residential premises in Wales. The requirement will be introduced in 2 phases with the first phase requiring fire suppression systems to be fitted to high risk residential premises. The second phase, implemented in January 2016 will see the requirement for fire suppression systems extended to all new residential premises built in Wales. This will make Wales the first jurisdiction in the world that will require sprinklers as standard in all new homes. The details of how exactly this will be incorporated into the regulations are not available at present but it will of course be another set of changes, which we must implement, and add to the growing list.

What an insightful question that was from my first Head of Building Control. I wonder what he would have done if I had said "No"? ■

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Introduction

Welcome to the April 2014 edition of Adjacent Planning and Building Control Today.

It's been a busy few months with some headline-making events for the planning world. The Chancellor's Budget extended Help to Buy, offering house builders greater certainty on delivering new homes. The National Housing Federation believe Help to Buy doesn't go far enough, and Eric Pickles believes it will provide a much needed boost to house building – particularly for Brownfield land – but herein lies another issue – the threat to greenbelt. We present articles from the CPRE and The National Trust discussing the threat and the government's failure to prioritise Brownfield land.

The NPPF arguments continue across the whole spectrum, with the Communities and Local Government Committee launching an inquiry into its operation. There has been much talk of the NPPF delivering 'perverse behaviour', blaming planning performance targets for the problems. The research conducted for the Committee identified 'pinch points' in the planning system affecting housing, and here, Michael Carnuccio of The National Housing Federation provides his thoughts on how the NPPF is influencing how local authorities deliver affordable housing (or not).

Another key NPPF (and greenbelt) contribution comes from Suzan Yildiz, Head of Planning at Olswang LLP. The article considers the emerging case law on the proper interpretation of key housing policies in a decision making context.

Planning is only half the story though. Our building control section has a major focus on the new Part L regulations, and we also look at energy efficiency issues in a wider context. Rob Pannell of the Zero Carbon Hub presents the initial findings of an industry-wide project that is investigating the causes of the energy 'Performance Gap' in new homes, and Nick Devlin and Sally Godber of the Passivhaus Trust highlight the principles of building to a Passivhaus standard as a method to address the 'Performance Gap' issue.

CDM is currently under the spotlight with The Health and Safety Executive (HSE) finally publishing the long-awaited Consultation Document for their proposed changes to the CDM Regulations. James Ritchie of the APS delivers a detailed assessment of the new proposals, and questions why both the "government and the HSE think the only solution is wholesale change to a system". The very short timeframe within which to respond is also a matter of some concern.

As ever, we have tried to include interesting and informative articles, but if you have ideas for future editions, please do get in touch.

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Contents

April 2014

Planning and Development

FEATURE: The Green Belt Under Threat

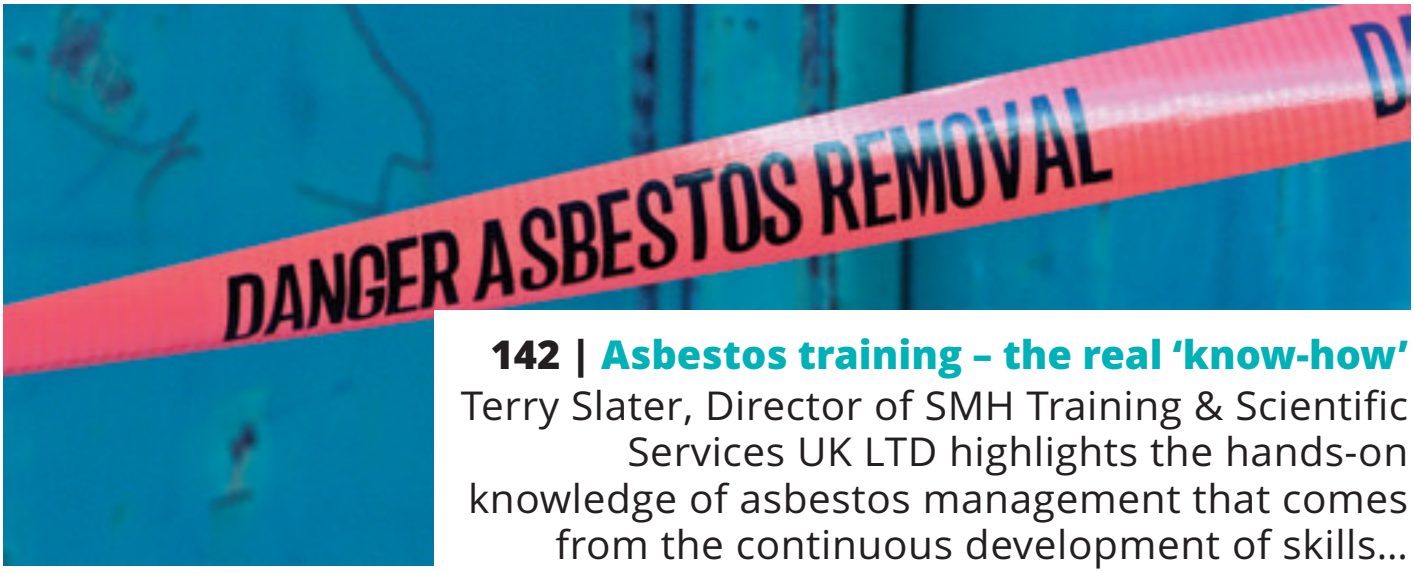
FEATURED INTERVIEW

BIM

Building Control

Overview

Energy Efficiency & Part L



Desk-based Assessments and Pre-Planning Archaeology

Dr Gerry Wait, Director at Nexus Heritage provides an overview of Desk-based Assessments and their importance in early-stage heritage advice...

A Desk-based Assessment (DBA) is usually the first formal opportunity for organisations proposing changes in use or management of land or buildings to benefit from professional heritage advice. Because of this 'early stage' involvement, this can be very important in terms of initial advice.

An initial point to make, without being facetious, is that archaeology, whether of landscapes or buildings is all about the unknown and the unexpected. The excitement on Time Team programmes comes from the discovery – in professional life this is a carefully managed process, but the essential point remains that surprise discoveries are not uncommon. Finding archaeology at the desk-based stage may not always be welcome, but finding archaeology later in the design and construction process gets increasingly expensive and difficult to manage. So the key is to get it 'right' at the outset.

Getting the right advice

There are 2 elements to 'getting it right' consisting first of getting appropriate professional advice, and second, of getting advice and reports undertaken to the appropriate standards and tailored to a specific development proposal.

Appropriate professional advice can usually be summarised by making sure your advisor is a professional – and that means a member of the UK's Institute for Archaeologists (IfA), or an equivalent professional institute (there are only a few elsewhere around the world).

IfA membership – look for either full Members or Associates (MIfA or AIfA as post-nominals) means that the individual has been validated, signed up to a code of conduct, undertakes continuing professional development and agreed to work in accordance with appropriate standards. Alternatively, look for advice from an organisation that is an IfA Registered Organisation – where a MIfA is responsible and the entire organisation adheres to the same professional standards. IfA is the archaeological equivalent of the Royal Institute of British Architects (RIBA) for architects, Institute of Civil Engineers (ICE) for engineers or Royal Institute of Chartered Surveyors (RICS) for surveyors.

Secondly, ensure the work is done to the appropriate standard, in this case the IfA's Standard and Guidance for historic environment Desk-based Assessment 2012 revision. (http://www.archaeologists.net/sites/default/files/node-files/DBA2012-Working-draft.pdf. This sets out the expected sources of information that should normally be consulted, and the analysis of those sources, leading to the types of conclusions and recommendations that would normally arise. Be prepared to discuss expectations and risks with a MIfA/RO at the outset, and expect clear advice before commissioning a DBA on what is going to be done and why. Not every source of information will be applicable in every development proposal, but to not consult some sources for reasons of time or cost, introduces increased risks that will need to be documented and taken into consideration in decisions throughout the design and application process.

The HER and DBA

The single most important source of information will be the Historic Environment Record (HER) which all planning authorities are required to have access to.

However, after the cut-backs in recent years to local authority funding, not all authorities will have an HER in-house, nor will all have access to heritage professionals to maintain an HER. In addition, getting information out of an HER can sometimes be both costly and sometimes time-consuming (for small projects or enquiries early in the planning process). Early contact should be made with the local planning authority's archaeological adviser in order to agree the brief for the DBA, and ensure that it will meet the local planning authority requirements. However, some local authorities no longer have archaeological officers, or where officers are still in place they may no longer have the scope to offer advice, which makes the importance of the professional undertaking a DBA and his/her reporting all the more important.

The process of analysis leading to conclusions and recommendations is often an iterative process as well, and should be undertaken with specific reference to both the heritage information about a site and the emerging development scheme. A generic desk-based assessment would be unlikely to be considered 'professional' – but there is nonetheless a continuum along which detail and specificity can range. The key to managing this issue rests in the concept of the significance of the known or potential heritage remains – more significant remains are likely to mean greater risks of costs and management down the line – and managing responses and costs begins with getting better information from the outset.

The standard briefly summarised is to determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment within a specified area. DBA will be undertaken using appropriate methods and practices which satisfy the stated aims of the project, and which comply with the Code of conduct, Code of approved practice for the regulation of contractual arrangements in field archaeology, and other relevant by-laws of the IfA. In a development context, DBA will establish the impact of the proposed development on the significance of the historic environment (or will identify the need for further evaluation to do so), and will enable reasoned proposals and decisions to be made whether to mitigate, offset or accept without further intervention that impact.

The purpose of a DBA according to the guidance is to:

- Gain an understanding of known assets and the potential for heritage assets to survive within the area of study;
- Of the significance of any such assets considering their archaeological, historic, architectural and artistic interests;
- Assess the impact of proposed development or other land use changes on the significance of the heritage assets and their settings;
- Outline strategies for further evaluation whether or not intrusive, where the nature, extent or significance of the resource is not sufficiently well defined and/or develop design strategies to ensure new development makes a positive contribution to the character and local distinctiveness of the historic environment and local place-shaping;
- Proposals for further archaeological investigation within a programme of research, whether undertaken in response to a threat or not.

Research and experience

Research and interpretation are terms that we need to consider in more detail. And this links back to my initial point about archaeology and discovery. Research and the organisation of data may seem a basic skill, but not all archaeologists have the same or appropriate expertise in conducting research, because research methods, sources, and analysis need to be linked to the likely subject matter on a site.

Even more important is having the appropriate experience and expertise to interpret the results of research. What this really means is being able to recognise and understand the clues that indicate either that known heritage remains may be significant, or that there is a heightened potential for significant remains to present. Good research can be undone by inadequate expertise in interpretation. A good professional will advise when they do not have the appropriate expertise called for in a particular set of circumstances, but the savvy client commissioning a DBA will assure themselves that their consultant is suitably skilled. Having the appropriate expertise means that the client gets the best advice based on the best information at each stage in a process, so that discoveries come as a positive opportunity not as an unwelcome alarm.

DBA contents

A DBA report will normally contain, as a minimum:

- A non-technical summary;
- A clear map of study area;
- A list of the data sources used;
- A succinct disposition of aims and purpose and methodology employed;
- Clearly identify the heritage assets and archaeological potential of the study area;
- Assess the interest and significance of each asset and its setting, focussing on those aspects which will be affected by any proposed or predicted changes;
- Assess the nature of the effects and options for reducing or mitigating harm;
- A description of the area's historic character and the effect of proposed development upon it (where appropriate, this should include options for conserving or enhancing local character);
- Conclusions, including a confidence rating and the extent to which the aims and purpose have been met and references;
- Supporting illustrations at appropriate scales, along with supporting data (sometimes tabulated), may be provided in appendices.

The change from the old Planning Policy Guidance Notes 15 and 16 to PPS5, to the NPPF has marked several important shifts. First, the compression of concepts from several hundred pages in the PPGs down to 4-5 pages in the NPPF means that the arguments can appear cryptic and the language coded, so again advice from a MIfA/RO and a planning consultant (a member of RTPI) is good practice.

Second, the issue of the setting of heritage remains has emerged as an important planning consideration – so assets (buildings or sites) located off-site can still be affected by changes in land use or development. This ought to be considered, even if briefly, at DBA stage.

Third, and of possibly greater importance is the shift towards seeking benefits to both developers and local communities from the process of managing impacts to heritage assets. The language used to be all about minimising impacts and managing risk – and these remain important. However, that is not the end of the matter, and developers can expect to have some benefits derive to them from the heritage work they have to undertake through the planning process. Likewise, developers ought to expect that local communities should also benefit from the works – which can take many forms including community engagement in investigations, open days, exhibitions, accessible publications and so on.

Commissioning a good DBA and getting good professional advice sets the appropriate foundations for this process and for a wide range of further investigations and activities that all lead towards the final benefits. But as the old adage has it: If you don't know where you are going then you probably won't get there.

Desk-based assessments are almost always done in support of either outline or detailed planning applications – they are essentially pre-planning works. We now need to consider 2 forms of archaeological research/investigation that move us into a grey area. This reveals a great diversity in the application of the seemingly simple heritage policies in NPPF. Local authorities and their archaeological advisors are notably diverse in what they expect in desk-based assessments, and this diversity grows ever greater when the next 2 'logical' steps in the archaeological process are concerned – aerial photographs and geophysical surveys.

Aerial Photographs – the next stage

Aerial Photographs (APs) have been an important archaeological tool for nearly a century. The popular TV programme 'Time Team' has revealed AP analysis to the public – the principle being that buried archaeological remains may affect crop growth or soil colours. The patterns of stunted plants in spring fields or green plants in a field turning golden in august all may reveal buried remains. Not all types of archaeology affect crop growth, and not all years are equally good at revealing these effects, so the technique is not a panacea, and the absence of crop-marks does not mean an absence of archaeological remains. In particular, crop-marks work best in revealing relatively shallow buried archaeological sites, and more deeply buried sites (e.g. where rivers flood and silt their floodplains, or at the base of steep hills) are unlikely to be visible. However, the tool remains an important one to the archaeologist.

Many archaeologists have basic skills in recognising crop-marks from aerial photographs, and where this technique may be important, then developer-clients or consulting archaeologists will turn to archaeologists specialising in the technique. The results of many previous aerial surveys have now been incorporated into many HERs through a national enhancement project, the National Mapping Programme, funded by English Heritage.

The 'geophys'

If 'Time Team' has explained aerial photographs, this is nothing compared to the mystique of, and reliance placed upon geophysical surveys – 'the geophys'. The principles behind geophysics are even more abstrusely scientific than for aerial photographs, but at the simplest level, the operative principle is that the presence of archaeological remains will affect how either minute changes in magnetic pulses or electrical resistance is conducted through the soil. The same limitations apply to geophysics as to APs – deeply buried sites (generally over 6-700mm below the surface) are in general harder to detect, and local geology and even weather (like prolonged heavy rain) can affect results and interpretation. Ground penetrating radar uses radar to 'see' more deeply into the ground or to see small faults in masonry structures and buildings, but is much slower and therefore more expensive to implement. Just as with APs, many archaeologists can 'read' many geophysical 'plots' and may even have had experience in using the survey technology, but again geophysics is something best undertaken and interpreted by suitably skilled professionals. ■

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Planning reforms: room for improvement

Michael Carnuccio, Policy Officer at the National Housing Federation examines how, 2 years on from the NPPF, affordable housing delivery is addressed...

It's 26 March 2012; house building is at an all-time low according to the Department for Communities and Local Government; only adding fuel to the unaffordability fire.

Fast forward 2 years, and planning approvals and house building are the highest since 2007[1] says the Home Builders Federation, and government is hailing its planning reforms a success[2].

Central to these reforms is the National Planning Policy Framework (NPPF). When published on 27 March 2012, it was hailed as the foundation of a simpler and more positive planning system.

With its 'presumption in favour of sustainable development', a central message of the NPPF is delivering housing and growth. This was certainly a step in the right direction.

What's more, for the first time, there was an explicit requirement for local authorities to plan fully for the objectively assessed affordable housing need in their area. Central to this, local authorities need to be clear about how and where this housing will be delivered, including keeping up-to-date the supply of sites that are needed. Job done then? Not quite.

Delays and uncertainty

It is evident that the NPPF has raised the stakes in terms of how local plans support housing delivery. Since its adoption there has been a raft of news reports of inspectors getting tough on local plans at Examination stage; either finding them unsound or asking local authorities to withdraw and go back to the drawing board so that they fully provide for housing need.[3] Many of these decisions have sought higher overall housing targets. We are not aware of any which have found fault with the

targets for affordable housing specifically. Confusion over the duty of local authorities to "cooperate" with neighbouring councils to pick up the tab on shortfalls in housing provision has also caused delays and uncertainty.

According to Planning Inspectorate figures[4] less than 13% of English councils have adopted a local plan since the NPPF was introduced (as of March 2014). A further 21% of councils have made it to the final stages of preparation, ready for examination by an Inspector. The slow progress of new plans through the system means many local authorities have been left with out-of-date policies. This has brought with it uncertainty over planning decisions and concerns over developers trying to ride roughshod over councils who don't have NPPF compliant plans.

"It is clear that the NPPF has enabled a step change in planning for housing and helped to bring forward schemes – though it is unlikely that the NPPF alone is to credit for the growth in housing approvals over the last 2 years."

Indeed, there is an increasing number of cases of inspectors overturning council refusals of housing schemes where they do not have an up-to-date supply of housing sites. The message is clear, the NPPF's presumption in favour of development is king where the local plan is silent, indeterminate or out-of-date.

Promise and deliver

One might conclude from this that more favourable treatment of housing proposals will result in more affordable housing being delivered. However, without up-to-date policies it is harder for councils and inspectors to argue the case for higher levels of affordable housing provision in schemes. In one appeal an inspector waived the affordable housing element of a 200 home scheme in York because there was a lack of identified housing sites. The message here is land availability trumps affordable housing.

This case highlights another central theme of the NPPF and its attendant (and recently published) National Planning Practice Guidance (NPPG). Plans should be deliverable, which means the cumulative weight of policy requirements should not threaten the viability of a scheme. In the York case, the inspector concluded that the provision of affordable housing would delay or even stop the scheme altogether.

The art of negotiation

Unfortunately, all too often affordable housing contributions are a casualty in negotiations around viability. This is partly because other contributions, delivered through the Community Infrastructure Levy (CIL), are less open to negotiation. And it is not helped by the Growth and Infrastructure Act which enables developers to apply for a watering down of affordable housing provision on the grounds of viability. As well as reducing affordable housing provision, negotiations over contributions lead to delays in the delivery of much needed housing on the ground.

It is clear that the NPPF has enabled a step change in planning for housing and helped to bring forward schemes – though it is unlikely that the NPPF alone is to credit for the growth in housing approvals over the last 2 years. And whilst this increase is welcome, it is not enough given that England needs an additional 250,000 homes every year if we are to fully meet need. What more could be done to increase supply?

Without delay

Tinkering further with planning policy isn't the solution. Instead, focus should be on measures to reduce unnecessary delays holding up planning decisions. Key to this will be having viability tested affordable housing policies to reduce the scope for negotiations over contribution levels. Where the viability of approved schemes is called into question, they should be offered to an alternative supplier before contributions are watered down.

With shrinking levels of grants for affordable housing, reducing upfront costs for land is a potential game-changer in overcoming viability issues. Public bodies should look carefully at how they can make most effective use of the land they own, releasing land on favourable terms that support affordable housing delivery. This includes deferred payments for land, leaseback schemes and equity sharing arrangements

which offer local authorities a guaranteed source of income whilst bringing down the costs of development.

"Tinkering further with planning policy isn't the solution. Instead, focus should be on measures to reduce unnecessary delays holding up planning decisions."

Local plans should also allocate specific sites for affordable housing. Financial rewards to local authorities could be enhanced to act as an incentive to allocating and delivering affordable housing. For example, the New Homes Bonus could be partly awarded based on allocation levels and approvals as well as completions.

All in this together

Housing associations are valuable partners in securing the provision of affordable housing. They have the experience and expertise to help local authorities assess housing need, identify deliverable sites and work through viability challenges. ■

[1] http://www.hbf.co.uk/media-centre/news/view/big-jump-in-housing-planning-permissions/

[2] http://www.planningresource.co.uk/article/1230045/osborne-says-new-rules-having-positive-impact

[3] http://www.planningresource.co.uk/article/1216518/inspectors-tougher-line-plans

[4] Inspectorate "Local Plans (strategic issues/'core strategies') progress – 31 March 2014"

http://www.planningportal.gov.uk/uploads/pins/local_plans/LPA_Core_Strategy_Progress.xls

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Support for local developers and new home buyers

From one of the UK's leading property service providers

As developers face the ongoing challenges of the property market it is obvious that many will be looking for support, not only in land acquisition – or even disposal – but also in finding potential buyers. Yet, whilst there is often support out there, it can come from an array of individual providers many of whom have little or no contact with each other, and which ultimately leads to confusion – and even wasted time and money – for the developer.

With this in mind, LSL Property Services plc (LSL), the parent company of estate agency networks Your Move and Reeds Rains and one of the UK's leading providers of residential property services, has decided to draw on its 'all round' expertise with a dedicated Land and New Homes division.

James McAuley, Director of LSL Land & New Homes explained: "Having listened and dealt with many developers across the country LSL and our associated estate agency brands, such as Your Move and Reeds Rains, know only too well that, despite the more positive market conditions, that some developers continue to face challenges – more recently in connection with land acquisition. It's because of this that we've made a concerted effort to respond to their needs. As a highly respected company LSL has a vast array of expertise and can easily and effectively provide integrated solutions for the benefit of developers and customer alike. Under the LSL Group umbrella, for example, we have companies offering valuation services, rental portfolio services, asset management services, estate agency services as well as, now, land specialists to offer support in finding land and in selling it.

"Already we act for many major house builders throughout the UK – many of whom appreciating that, whilst we've got the support and investment at national level, we can also draw on the knowledge and expertise of local teams to tailor our services to their individual needs. Ultimately we know it's all about ensuring we support the individual objectives of developers and builders and yet, at the same time, add value to their businesses.

All in all the future looks very bright for LSL Land and New Homes and we certainly hope that we can build on LSL's strengths at local and national level and help even more developers and customers in the future.

We welcome the news that the government have announced an extension of the Help to Buy scheme until 2020. Many of our developer clients tell us that Help to Buy scheme accounts for around 20% of their new homes sales, and the initiative has undoubtedly helped to increase the level of land transactions across the country on the back of the increasing demand for development land."

With more than 90 years combined experience, the dedicated team, working with their estate agency colleagues, can offer national coverage coupled with in-depth local knowledge. They can carry out a land valuation and assess commercial viability, assess the planning position and determine suitability, or otherwise, of existing planning consents, as well as carrying out land assembly and negotiating land purchase from third parties.

Their expertise also extends to mixed use schemes, residential schemes and challenging Brownfield sites, and the team now benefits from the experience of an RICS qualified chartered surveyor.

If you'd like to find out more details about how LSL Land & New Homes can help you, or you would like to contact one of their new Land Managers, simply access the website www.lsllandandnewhomes.co.uk or call 01709 830757(*)

LSL Land & New Homes

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NPPF: The Good, the Bad, and the Ugly – part 2

Suzan Yildiz, Head of Planning at Olswang LLP considers the emerging case law on the proper interpretation of key housing policies in a decision making context and concludes perverse consequences can flow from over-simplification of national planning policy...

In an uncertain planning world the NPPF certainly continues to surprise. 2013 culminated in illuminating, if foreseen, case law on the proper interpretation of the National Planning Policy Framework (NPPF's) housing land supply policies. March 2014, brought into the public domain the curiously semantic correspondence (click the link for full version) between the Planning Minister and the Chief Executive of the Planning Inspectorate. A troubled Boles directed Inspectors to "choose their words carefully and reflect government policy very clearly" on release of Green Belt land for housing provision[1]. A bemused Sir Michael Pitt duly warned his Inspectors, but sought clarity about the government's direction of travel on objectively assessed housing needs. The semantics suggest Inspectors' should politely recommend, rather than deem it necessary to review Green Belt boundaries. A proverbial storm in a political tea-cup or, dare I say it, a dose of electioneering placing renewed emphasis on localism? Whatever the realpolitik, the need to strike a balance between meeting 'objectively assessed housing needs[2] and protection of Green Belt (or similarly constrained land) is at the heart of case law developments and the exchange of letters.

Objectively assessed housing needs and planning constraints

This article examines the approach to objectively assessed housing needs versus planning constraints, shortfalls in housing supply and the meaning of 'persistent failure to deliver'. For ease of reference and consistency, certain terminology is deployed. The NPPF is referred to as the Framework[3]. For consistency with case law and to distinguish application of policies, reference to 'development control'[4] decisions is made. The term 'planning constraint' denotes references to Green Belt, Areas of Outstanding Natural Beauty (AONB), Metropolitan Open Land or similarly constrained situations[5].

The correct approach to determining 'objective housing needs', and consequently adequacy of 'housing land supply', is of crucial importance to the soundness of development control decisions in relation to housing schemes on land or in districts with significant Green Belt (or other planning constraints). It is noted at the outset that a holistic reading of paragraphs 14 and 49 of the Framework indicates that it is conceivable the local plan may legitimately be unable to meet 'objectively assessed needs'[6]. The difficulties, as will be seen, arise in the absence of an up-to-date local plan or definitive data on 'objective needs', but nonetheless a decision maker (whether on appeal or application) is invidiously bound to establish 'objectively assessed housing needs'.

City and District Council of St Albans v Hunston Properties Limited and SoS, 2013[7]

The first notable housing land supply case in the Court of Appeal, Hunston Properties Limited turns on the proper interpretation of "objectively assessed needs for market and affordable housing as far as is consistent with the policies in the Framework" (paragraph 47). Unsurprisingly, the case arises in a popular district almost entirely bounded by Metropolitan Green Belt. Hunston sought outline permission for 116 dwellings (and associated development) on a site within the Green Belt. St Albans lacked an up-to-date plan in accordance with the Framework, but refused permission for reasons associated with

protection of the Green Belt. By way of reminder, in planning policy terms, housing development on green belt land remains inappropriate development unless 'very special circumstances' exist[8]. A subsequent planning appeal was likewise dismissed.

"The correct approach to determining 'objective housing needs', and consequently adequacy of 'housing land supply', is of crucial importance to the soundness of development control decisions in relation to housing schemes on land or in districts with significant Green Belt (or other planning constraints)."

Hunston's Section 288 challenge against the appeal decision succeeded. In determining 'objectively assessed needs', the Inspector had erred in relying on revoked Regional Strategy figures of 360 homes (which were deemed to reflect the considerable Green Belt constraints in the area), as opposed to need for 688 homes (being the 2008 projections for new households)[9]. This error led to the fatal finding of no shortfall in the 5 year housing land supply[10]. St Albans appealed in the Court of Appeal, but was dismissed.

Hunston offers critical lessons for decision makers determining housing schemes in light of planning constraints, where an up-to-date plan, or for that matter definitive evidence on housing needs is lacking:

- In determining 'objectively assessed needs'[11], the specific role of the qualification 'as far as is consistent with the policies in this Framework'[12] is directed at the plan making process. It does not qualify or reduce, as the Inspector wrongly assumed, the housing need itself but the extent to which the local plan might be able to meet the housing need in light of constraints. The Inspector had erred in adopting a constrained figure for housing need. She ought to have found a shortfall in the expected housing land supply below objectively assessed needs.
- A shortfall in housing land supply will not automatically demonstrate 'very special circumstances' justifying development in the Green Belt, but the scale of the shortfall might, depending on the degree of weight and significance afforded to it.
- Broader district wide constraints[13] may mean a shortfall in housing land supply is inevitable. Therefore, of limited weight in development control decisions. Essentially, broader district wide constraints, as well as site specific considerations, could be factored into the overall planning judgement.

Therefore, Hunston confirms a local plan could legitimately fall short of meeting objectively assessed needs due to the extensive constraints in the area (not simply the site itself) without the shortfall amounting to 'very special circumstances'. This does not obviate, but demands, an up-to-date plan. In a development control scenario, having established the correct level of objective need, the weight to be attached to the scale of any shortfalls in supply and the wider planning context are likely to be determinative of whether 'very special circumstances' exist.

Cotswold District Council v Secretary of State, 2013[14]

In November 2013, the issue was revisited by the High Court in the Cotswold case in respect of 2 applications by Cotswold DC to quash decisions of the Secretary of State granting permissions on appeal for (i) an outline scheme comprising 250 residential units, and (ii) a residential scheme of 39 units, both on sites in Tetbury and within AONB. The Cotswold case adopted the approach in Hunston, namely agreeing that paragraph 47 was directed at planning making functions. Nonetheless, the question of 'objective housing needs' and whether there is sufficient supply to meet those needs were material considerations for the decision maker.

The decision of the Cotswold Inspector (which was exceptionally thorough) was endorsed, and suggests

the following approach to determining housing schemes impacted by planning constraints and the absence of an up-to-date local plan:

- Establish 'objectively assessed need';
- Determine deliverable 5 year housing land supply;
- Consider if there has been 'persistent under-delivery' of housing;
- Conclude whether the difference between objective needs (plus a 5% or 20% buffer if persistent under-delivery) and deliverable 5 year housing supply, leads to a shortfall in housing land supply;
- Exercise overall planning judgement.

Persistent Under-Delivery

The Framework requires local planning authorities to apply a 20% buffer to meet housing requirements where there has been persistent under-delivery. This buffer influences the quantum of objective needs, housing supply shortfall, and in a development control scenario, overall planning outcomes. But what does it mean? What is the relevant period for assessing performance? Is it a continuous and demonstrable failure to deliver? These issues were considered in the Cotswold case.

Firstly, the court recognised that whilst development plan policies have legal status and effects, they are not construed as statutory or contractual provisions; instead their application requires the exercise of planning judgement based on a set of facts[15]. Secondly, paragraph 47 is to be interpreted and applied with regard to its overall purpose and context.

Lastly, 'persistent under-delivery' is a reference to 'a state of affairs which has continued over time', such time to be a reasonable period of time over years, not a point in time or a temporary fluctuation. There has to be 'an assessment of previous performance' to establish 'a record of under-delivery' against 'some measure of what the housing requirements were'. In other words, a persistent policy failure to meet the appropriate housing targets over the relevant period. Interestingly, the judge concluded a decision maker could identify 'an appropriate measure of housing needs' separately from the relevant development plan or as a means of reinforcing the plan. The Inspector in the instant case had annualised delivery figures over a 5 year period to find persistent shortfalls in delivery against annual targets. However, the Inspector had also considered and concluded under-delivery occurred during 7 or 8 out of 10 relevant years. The performance assessment had regard to housing need projections, not the plan targets which were deemed artificially low.

Conclusions

There are tensions in emerging case law, perhaps reflective of policy tensions. In the Cotswold case, the judge observed (albeit not decisively) that the presumption in favour of sustainable development[16] does not apply to housing applications on land with protected designations[17]. Yet this seems dubious in light of the trilogy of South Northamptonshire cases[18] and Cotswold itself, which have disapplied 'relevant housing supply policies' under paragraph 49 for the purpose of triggering the presumption. The paragraph 49 exercise of disapplication feeds directly into the overall planning judgement and presumption under paragraph 14, whereby if policies are deemed "out-of-date", permission should be granted unless constraints dictate otherwise.

The meaning of policy (although not its application) is the courts' remit, yet the courts too are struggling with a holistic reading of the Framework. The judge in Hunston observed "unhappily, as this case demonstrates, the process of simplification has in certain instances led to a diminution in clarity"[19]. In essence, the simplification of the Framework on technical issues, such as housing needs and land supply, demands careful judgments policy by policy, paragraph by paragraph, line by line as to whether the relevant policy targets plan-making or decision-taking. Sadly, semantics have entered the world of planning judgments and are here to stay at a time

when the need for planning certainty is greatest. If not quite 'a lawyer's charter', the Framework is certainly creating a window of opportunity for Counsel with an appellate practice. The purposive-interpretation led approach to the Framework potently highlights the indivisibility of law and policy: consequently, and on a practical level, the need for a collaborative approach between planners and lawyers during the planning process. On the bright side, never let it be said that the art of letters is dead. The author, for one, enjoyed the Pitt-Boles letters.

Since publication of the Framework, the author has consistently highlighted the importance of up-to-date plans and good practice for local communities, developers and the profession alike[20]. The lack of up-to-date plans and definitive assessments of 'objective housing needs' renders planning authorities vulnerable to appeals and legal challenges on housing schemes. Given the national housing crisis, it is unsurprising that house builders benefit from the Framework's policies. The approach to assessing objective needs, housing supply and under-delivery are too technical and nuanced for day to day decision making, they properly belong to the plan-making stage. What is truly troubling, and ugly in keeping with our series' title, is the unexpected finding that the Framework can "create perverse incentives, such as some local authorities refusing an application simply to make a decision within the statutory period."[21] Worse still, scrutiny of committee decision making may well disclose that in parts of the country some elected members could be avoiding the tough political choices, which they are elected to make, between protection of Green Belt and meeting housing demand. A select committee of MPs is due to review the unintended impacts of the Framework in terms of 'planning for housing, town-centres and energy infrastructure'. The report will no doubt be eagerly anticipated. ■

[1] The exchange occurred in response to the Inspector's report into the Reigate and Barnstead Local Plan

[2] Paragraph 47, bullet 2, Framework.

[3] It is understood DCLG desire that the NPPF be known as the Framework.

[4] The author's and indeed the sector's preference is development management for obvious reasons.

[5] Reference could equally be made to policy protections. However, the term constraint is consistently used in case law. Its use in this article does not indicate a bias towards either position.

[6] See footnote 9 to paragraph 14.

[7] [2013] EWCA Civ 1610.

[8] See paragraph 87, NPPF.

[9] The 688 figure was derived from projections by the Department for Communities and Local Government (DCLG) for new households.

[10] Under paragraph 47 (bullet 2).

[11] Under paragraph 47(bullet 1).

[12] E.g. Green Belt protection policies.

[13] E.g. Green Belt or Areas of Outstanding Natural Beauty (AONB) or similar constraints.

[14] [2013] EWHC 3719 (Admin).

[15] These comments referenced the Supreme Court judgement in Tesco Stores Ltd v Dundee Council (Asda Stores Ltd and another), 2012 UKSC 13 relating to development plans.

[16] In reference to paragraphs14 and 49 (first line).

[17] See paragraphs 12 and 13 of the Cotswold DC judgement.

[18] In the a trilogy of South Northamptonshire cases between December 2013 and March 2014, a number of seemingly general strategy and environment policies were deemed 'housing supply policies' and disapplied.

[19] Paragraph 4 of Hunston judgement

[20] This view is supported by recent research by Dr Gemma Burgess of Cambridge University.

[21] See Dr Gemma Burgess' research above.

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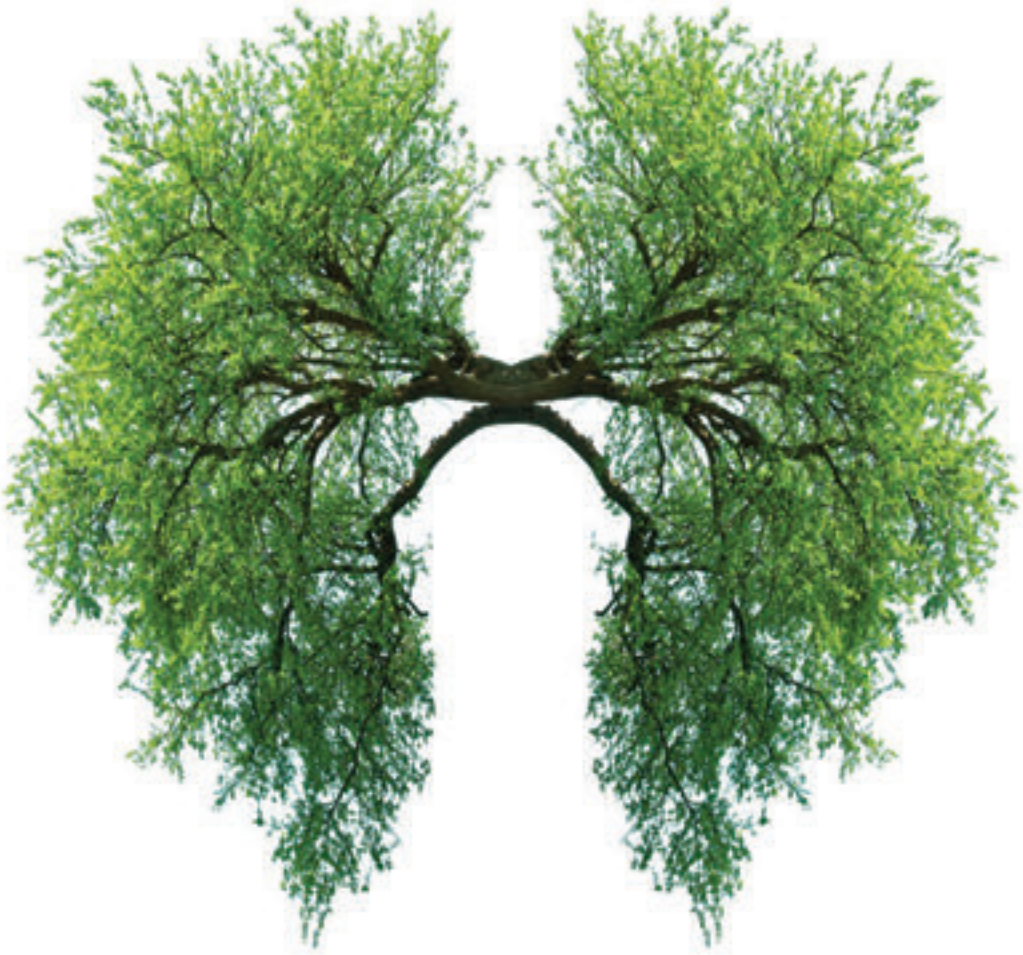

NPPF – a failure to protect our 'green lung'?

Paul Miner, Senior Planning Officer at the Campaign to Protect Rural England (CPRE) highlights the findings of a recent report that shows planning reforms are putting rural England under siege...

The government's planning reforms are unnecessarily damaging the countryside and undermining local democracy, while failing to prioritise brownfield land and the regeneration of urban areas, and deliver the homes that communities need. That's the main conclusion of a new report, Community Control or Countryside Chaos? by the Campaign to Protect Rural England (CPRE). The report analyses the impact of the National Planning Policy Framework (NPPF) on the countryside in the 2 years since it was adopted.

The part of the NPPF that has had possibly the most impact is the requirement on local authorities to have a 5 year supply of 'deliverable' sites for new housing. This policy has given more power to developers who wish to develop profitable greenfield sites, as brownfield sites are more challenging to bring forward. Resultantly, local councils are being forced to accept major developments against their will in all parts of the country. In addition, draft and adopted Local Plans propose over 700,000 houses in the countryside - including 190,000 allocated for the Green Belt.

In the majority of cases, the government is now backing developers of large housing schemes. CPRE's analysis of planning appeals for the largest housing schemes shows 39 developments (67% of the cases analysed) were allowed in the past year. Many councils, also facing wide ranging budget cuts, are now reluctant to defend an appeal due to the risk of incurring substantial costs. Fylde Borough Council in Lancashire, for example, recently had to pay costs of £100,000 when it was overruled at appeal.

"Developers are exploiting the absence of an up-to-date Local Plan to submit speculative planning applications for large housing developments on several greenfield sites around a settlement."

Government policies have also served to significantly slow the rate at which local plans are being adopted, after a promising initial increase between 2010 and 2012. On current rates of progress, only around two thirds (65%) of local authorities will have up-to-date, sound Local Plans by the May 2015 General Election. This is leaving councils powerless to decide what land should be developed in the best interests of local communities.

As a consequence, the countryside surrounding a number of towns and villages is 'under siege'. Developers are exploiting the absence of an up-to-date Local Plan to submit speculative planning applications for large housing developments on several greenfield sites around a settlement. The report highlights 11 particularly serious recent examples. Proposals for development are coming forward that, in cases such as Kentford in Suffolk, would lead to the size of a village more than doubling. The issues recently highlighted by MPs including David Heath and Nick Herbert are widespread, and their causes can be directly traced to the policies in the NPPF, particularly on housing land supply.

The report also reveals that only just over a quarter (27%) of local authorities propose to prioritise brownfield sites over greenfield because the NPPF does not give enough support for them to do so.

The new Planning Practice Guidance, published in March 2014, seeks to address a number of issues where the NPPF is insufficiently clear. CPRE welcomes the new guidance which calls on local authorities to take a range of actions to bring forward brownfield sites for new development, and also that un-met need for housing does not in itself justify changing Green Belt boundaries. Other elements of the guidance (for example the sections on taking market signals into account in assessing development needs and on rural housing) could make problems worse, however. We believe, therefore, that the problems we have highlighted will continue unless the government sets a clearer policy of requiring brownfield sites to be used before greenfield.

CPRE's position is that the government urgently needs to rethink its planning policies. There have been some recent signs that Ministers are willing to do more to promote brownfield development and protect the Green Belt. This is very welcome, but much more needs to be done to protect the countryside, put communities back in the driving seat, and build the new homes the country needs. ■

CPRE's report Community Control or Countryside Chaos is available from www.cpre.org.uk

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Protecting Britain's star feature

Green belt is increasingly coming under pressure from development, and here, The National Trust outline their concerns...

Although historically the Green Belt has been some of Britain's most protected rural space, concerns have recently been expressed that it is coming under increasing pressure from development. As the government's National Planning Policy Framework (NPPF) approaches its second anniversary, at the National Trust we want to make sure that the government's planning policies are doing their job by adequately protecting the Green Belt and delivering sustainable development.

Why is Green Belt important to the National Trust?

If you asked people to picture Green Belt in their minds, many would have a vision of beautiful countryside. Whilst some Green Belt land is beautiful, this is not the main reason why it has a special status. Green Belt benefits from special protections in planning policy to stop the incursion of urban areas into the countryside, and prevent the merging of towns. As our chairman, Simon Jenkins puts it, the Green Belt has "protected a vision of rural England and retained access to green spaces for urban dwellers." In this way Green Belts play a key role in keeping our landscape special and are described by some as 'green lungs' for our cities.

Research by the Campaign to Protect Rural England (CPRE), shows there are already a significant number of Green Belt development sites that have been given the green light by councils, often against the wishes of local communities. On 24th March, CPRE stated that over 190,000 houses are scheduled to be developed on protected land. This is over double those planned in 2012, and that this would equate to a loss of more than 21.62 square miles of Green

Belt land. These figures don't take into account the potential impact of the growingly controversial HS2 line which will require further sacrifices.

Both before and since the new planning rules were adopted, government ministers reassured us that the Green Belt would continue to be protected. When the NPPF was drawn up in September 2011, the Prime Minister wrote to the Trust stating that "we must ensure the appropriate protections for our magnificent countryside. This is why our reforms will maintain protections for the Green Belt". This mismatch between the government's clear intention and reports of what is happening on the ground prompted us to look into the matter further.

Last summer we commissioned the Local Government Information Unit (LGIU) to carry out a survey of local councils, which the survey revealed that over 50% of councils that had Green Belt in their local authority area are currently likely to allocate some of this for development. It's hard to argue with Jonathan Carr-West's (CEO of the LGIU) analysis that "targets around housing supply are putting significant strain on councils' ability to protect Green Belt." What is more, the Green Belt could be being developed despite widespread availability of brownfield land, with more than half of the 147 councils that responded claiming that their local authority had brownfield sites available, but that had been considered unviable for development.

So it would seem that although the coalition government has repeatedly stressed its attachment to protecting Green Belt, the new planning rules are nevertheless leading councils to consider allocating land in the Green Belt for development. We were also concerned by the draft versions of new planning policies, published in September and the subject of a recent consultation. Expert advice given to the Trust suggested this new set of policies could be a missed opportunity to underscore the government's 'brownfield first' policy, and might result in local authorities releasing more land in the countryside and the Green Belt for development.

That's why in December we decided to publish our research on Green Belts, and we wrote to the Communities Secretary Eric Pickles asking the government to reaffirm its commitment to Green Belt protection, and to ensure the new planning guidance reinforced this protection, and did more to deliver a truly brownfield first approach to development. On 6th March the government published the new guidance in its final form. Although it's too early to assess the impact of this, our initial reaction is positive as the government has underlined the importance of the Green Belt, and taken some practical steps to encourage more utilisation of brownfield sites.

Though all this feels like a step in the right direction, we will continue to keep a watch on how the new guidance plays out on the ground. The government has a difficult task to ensure we get the new housing we need built in the right places, and at the Trust we are committed to working with them to ensure that we see truly sustainable development that impacts on the countryside as little as possible. To do this, we should continue to protect our Green Belt, which has, as Simon Jenkins says, 'been the star feature of British town and country planning for half a century', and has been admired worldwide for helping to preserve our unique English landscape. ■

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Embodied carbon: the need for action

In an interview with Gary Newman, Executive Chair at the Alliance for Sustainable Building Products (ASBP), the issue of including embodied carbon in a zero carbon definition is examined, and the challenges outlined...

It is estimated that globally, the built environment accounts for 40-50% of natural resource use, 20% of water use, 30-40% of energy use, and around a third of CO_2 emissions. The Green Construction Board estimates the impact of products and their construction in the UK is 33Mt CO_2 pa. These staggering figures are the catalyst for the approach to zero carbon buildings with the UK government announcing in 2006 the Code for Sustainable Homes, with a target that all new homes would be 'zero carbon' from 2016, and the non-domestic building targets set at 2019.

The Housing Standards Review now indicates that the Code for Sustainable Homes will be wound down, with standards being included within Building Regulations.

The ASBP, and UK-Green Building Council (GBC) agree that one aspect of the zero carbon definition that is missing is the impact that embodied carbon can make. It's a topic that has created much debate with the UK-GBC devoting a whole week of events in early April to highlight the theme of 'Life Cycle Analysis' [1].

So what is embodied carbon? Newman's explanation is thus:

"Embodied carbon is all the carbon associated with the manufacture of the products and how they are used and deployed in construction. The Green Construction Board [2] refer to it as capital carbon, but for me it's the same thing, and its all the carbon associated with material extraction, transport, product manufacture and use of products in the building including maintenance, end of life & carbon associated with the build process."

Asked if measuring embodied carbon is complicated, Newman conceded that it could be when dealing with minute details, with disagreement over the methodologies, some of which favour certain types of products over others. He said; "It's no more complicated than measuring energy- which is the important thing to bear in mind from my perspective. We regulated energy in use in the 1970's, and we're still arguing over measurement some 40 years later".

As there is no requirement in current regulations to consider the embodied carbon impact, the extent to which it is included in non-domestic buildings is patchy at best. In Newman's opinion it isn't really considered in any meaningful way. For instance, if using BREEAM there is a requirement that if you want the materials credited within BREEAM and the Code, you should consider the embodied impact of your product. However, that embodied impact would not just be carbon, but also 12 other impact categories contained within the Green Guide to Specification.

Newman said that; "The ASBP believe that the Green Guide is not fit-for-purpose. What it does is just rubber-stamp the status-quo. The methodology is flawed, the data is confidential so you can't challenge it, and in my opinion, it's held back the development of a robust approach to dealing with embodied impact in its entirety, and embodied carbon in particular." He added: "Another flaw is that the methodology very much favours mineral-based products over biogenics such as wood."

Newman highlighted that Europe, through the CEN CT350 committee, have been able to deal with the embodied carbon issue to a certain extent, saying that "it's not perfect but it's a start". By applying the

European CEN CT350 standards, this should allow the communication of results across Europe, and using product data from products assessed in a harmonised methodology (EN15804 [3] based). Newman's opinion is that "You don't have to have the all-singing-all-dancing methodology that everybody agrees with to make a start. The key is to find a way to make a start now, and improve as we go." ASBP is a member of the RICS global embodied carbon group which is aiming to harmonise standards globally. Its second report is due 8th April.

In Holland, legislation now requires an embodied carbon calculation for any building over 100m^2 and France will legislate next year (2015), proving we can learn from them.

"The ASBP believe that the Green Guide is not fit-for-purpose. What it does is just rubber-stamp the status-quo. The methodology is flawed, the data is confidential so you can't challenge it, and in my opinion, it's held back the development of a robust approach to dealing with embodied impact in its entirety, and embodied carbon in particular."

The UK-GBC Task Group published their report: 'Building Zero Carbon- The case for action' [4] on 27 Feb 2014. In the report, they argue that the UK government should 'restate its commitment to the 2019 target (for zero carbon non-domestic buildings) and set out a clear and ambitious definition of zero carbon'. The report also argues that the UK should be taking the lead in defining zero carbon if it is to capitalise 'on the economic growth and export opportunities of low carbon building knowledge, skills and technology'. For the ASBP, the issue of embodied carbon is a key component of any zero carbon definition, and although the UK-GBC agrees, the timing is one of disagreement.

In the report, the UK-GBC state that: "We also think that government policy, in time, should seek to reduce and offset, or otherwise address unregulated energy and the 'capital' carbon associated with the construction of buildings (embodied carbon)."

Newman is disappointed that inclusion of embodied carbon within regulations is not met sooner, saying that the reason behind the delay is a belief that the methodology is too embryonic. He says that the UK-GBC stance is that we should be looking at 2025 before inclusion. Newman believes the report is well intentioned but that we need more clarity from government. He said: "I think it goes awry in that it underestimates the significance and the opportunity of embodied impact- not just in carbon, but in the build process and resource efficiency. 2025 is a long way away and I've been arguing that if you say there isn't a unifying methodology, then why support BREEAM and the Code for Sustainable Homes for so long, which is a methodology not fit-for-purpose".

"The Code for Sustainable Homes is compulsory in Wales, so you have to use this if you want a materials code credit. To me it seems on the one hand we're not ready, but on the other we are, and companies have been paying for their Green Guide Rating for this long."

The crux of Newman's argument is that there will never be a full robust agreement on the methodology that's completely harmonised and not open to interpretation (at least not for a long time), but that shouldn't stop us starting to regulate for embodied impact, or at least develop standards.

The UKGBC report follows on from the housing standards review where the discussion was whether to discard the Code for Sustainable Homes, and within that it said that the materials should be left to the market. The question here is where is the driver? Newman argued: "We regulate for energy efficiency, and as you would expect, the strong driver there is to save everyone money, so in turn, regulation began. But this doesn't exist for embodied carbon and we need to regulate. I think that perhaps UKGBC underestimate the scale of the 'wins' [5] that could flow from a focus on embodied carbon - such as the re-use of structural steel, and sequestered carbon in biogenic products. They don't simply reduce the overall carbon impact of a building; they are improving buildings through reducing the whole-life-cost. Embodied carbon would enable a greater focus on

the whole life aspect. There is a big gain, but waiting until 2025 is a missed opportunity".

Newman is convinced that a robust planning standard should be available now- whether it is voluntary or compulsory as a starting point to drive this agenda forward. The whole definition of a zero carbon building depends upon it. Newman mentions an organisation called the ISEAL Alliance [6] which is the international organisation for sustainability standards. They use what they call the credibility principles – one if which is truthfulness, meaning that your standard actually delivers what you say it delivers. Newman certainly believes that; "It would be misleading to call a building zero carbon if the embodied carbon has not been included. In my opinion it would either have to be included, or you don't call a building 'zero carbon'."

The ASBP are committed to pushing this agenda through the routes available to them, operating on an educational level about the importance of embodied impact, on a policy level meaning they will lobby where they can, and on a research level to provide evidence where they can. ■

[1] http://www.ukgbc.org/content/calendar-events-embodied-carbon-week

[2] http://www.greenconstructionboard.org/

[3] http://www.hamans.com/sustainability-standards/general-themes/categories/listings/general-standards?start=5

[4] ibid

[5] http://www.asbp.org.uk/uploads/documents/resources/ASBP%20Contribution%20to%20UKGBC%20Zero%20Carbon%20Non%20Domestic%2020140111%5B1%5D.pdf

[6] http://www.isealalliance.org/

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Technology Strategy Board (TSB) funded research projects

The ASBP have two current Technology Strategy Board (TSB) projects. The first being Re-fab [1] – which examines resource efficient fabrication. It is expected the ASBP will demonstrate the embodied and operational carbon wins from:

- Designing for deconstruction and reuse;
- Designing for more component based modular construction within a framework that reduces the performance gap issue.

This project will provide further evidence that the wins are substantial. The ASBP have completed a feasibility study with the TSB and have begun the design stage with Sir Robert McAlpine and ES Global.

The ASBP have also bid the TSB for a project that aims to integrate the product manufacturers. Clearly, a supply chain is required to provide the appropriate products. So this application to TSB which includes a large number of companies, will examine how they can supply their products in a different way. Newman explained; "Currently, when you build, you write off the value of the materials the day you put them in. For example, when steel is provided for a building in central London, the developer attaches no value to that steel outside of its current use. When that building is demolished, the steel is basically scrapped, melted down, and remade into steel at massive high embodied carbon. If you had a framework for reusing that structural steel the developer could finance it, without having to pay for it all and go to another building when we deconstruct the use. The wins for the supply chain are substantial, but it can be perceived that what you'll get is reduced demand. We argue this would be compensated by 'added-value'. We know that going forward; we must get more use out of resources, as we don't have enough to go around. If this project is agreed we will be incorporating BIM into the whole project."

[1] A short video explaining the principles of the Re-fab project is available here https://www.youtube.com/watch?v=95DbaxMVhOk

The community energy revolution

Naomi Luhde-Thompson, Planning Campaigner for Friends of the Earth details how community-owned renewable energy needs action not words, from local and national government...

The installation of solar on rooftops in the UK crossed the half million threshold[1] earlier this year. If that wasn't exciting enough, there are predictions of a solar 'gold rush' this year.

But we believe that the emphasis for any renewable energy revolution has to be on the community ownership because of the direct benefits in terms of costs, awareness and engagement. An energy system owned by a select few must rapidly become a thing of the past. The government's Community Energy Strategy recognises the potential of community energy to change the way we think about and use energy, but it fails to see community-owned schemes as major transformative suppliers such as is the case in Germany. There, only around 11% of renewable energy generation is owned by the utilities – the majority is owned by co-operatives, farmers and individuals.

This year the key priorities for the UK government to break down the barriers around community owned energy should be:

- Priority access to the grid for community-owned (or partly owned) renewable energy, which has been essential in both Germany and Denmark in driving forward renewable energy development and the attendant jobs and benefits;

- Introducing a mandatory share offer for onshore wind. In Denmark this has been essential for the public acceptance of schemes;

- Changing the planning practice guidance for onshore wind to create certainty and remove risk for community-owned projects;

- Changing supply licences so that communities can easily supply as well as generate.

The Department for Energy and Climate Change (DECC) is currently considering introducing a version of the mandatory community share offer in 2015, although they prefer the 'voluntary approach'. The mandatory community share offer has existed in Denmark since 2008 as part of their Renewable Energy Act. In Denmark this requires all developers of wind turbines where the height is at least 25m onshore, to offer 20% of the shares in that particular scheme to those people living within 4.5km of the nearest turbine. The offer has to be notified in local newspapers (similar to a planning notice), and procedures followed to ensure that shares are distributed fairly if there is oversubscription. This is considered a key part of making the project acceptable to the local community in Denmark. It is essential that the government moves as quickly as possible to introduce a similar scheme in England, Wales and Northern Ireland, to create a level playing field for developers, and to ensure that communities have a stake in local onshore wind projects of a certain size.

In addition to ensuring part ownership for communities of certain projects, more needs to be done to encourage community-led projects at smaller scales, particularly through planning and access to finance.

Planning has a key role in bringing communities together to understand and create their own renewable energy response. The National Planning Policy Framework (NPPF) both helps and hinders the development of community-owned and renewable energy. The support comes in paragraph 97: 'To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources.' It also says that there is no requirement for applicants to 'demonstrate overall need'.

The fail is the sidestepping of ambition and scale. There is simply no vision of how much community-owned renewable energy needs to be developed, and what that will look like for every street and every village if the first commitment of 'responsibility on all communities' is realised. Instead, there are mentions of 'positive strategy to promote renewable and low carbon energy', and 'consider identifying suitable areas'. However, in order to reduce people's energy bills, renewable technologies including; solar thermal on roofs; new district heating systems; photovoltaic solar panels on offices; and wind turbines on industrial estates, all need to become a common feature of our built environment.

There are some shining lights in the renewable energy firmament, such as Bristol and its solar city ambitions and Sheffield, which tops the number of solar installations. But there are still too many local governments in England, Wales and Northern Ireland who do not see renewable energy planning as a priority.

Germany, one of the innovators in the field of both community-owned and renewable energy, is taking energy planning to smaller than local authority level. They think that there are simply different solutions for every neighbourhood, and that each place has to find the solution that is best for them.

As neighbourhood planning remains under-resourced, energy efficiency schemes are stalled, and as planning delivery services have seen swingeing cuts in England, it is essential that champions of community energy and champions for planning get together and demand much more resource and investment. This will allow the UK to reap many rewards in terms of resilience to energy prices, new local jobs, and lower bills. ■

[1] http://www.businessgreen.com/bg/analysis/2322628/uk-solar-panels-reach-half-a-million-rooftop-milestone

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Cambourne development at Cambridge. Attenuation ponds for the stormwater drainage system

Photograph: R Kellagher, HR Wallingford (2006)

The SuDS principle

Richard Kellagher and Bridget Woods-Ballard from the BSI drafting panel responsible for the development of the surface water management standard, talk SuDS...

BS 8582 Code of practice for surface water management for development sites is seen as being essential in providing a definitive set of guiding principles for surface water management. This Code of Practice draws together best practice from all relevant sources in a succinct manner, enabling a more consistent approach to be adopted across the whole of the UK. It will be particularly useful to those involved in developing standards and guidance within devolved governments and local authorities. BS 8582 has already been valuable in the development of the soon to be issued National Sustainable Drainage Systems (SuDS) Standards for England and the current redrafting of the CIRIA SuDS Manual, due to be published next year.

BS 8582 encourages all stakeholders to think positively about managing surface water runoff in urban areas. Particular attention is placed on seeing rainfall as a resource, putting stronger emphasis on the use of harvested water, reducing the volume of runoff using infiltration and other techniques, as well as applying the well understood requirements of controlling the rate of runoff to minimise the risk and effects of flooding downstream. The objective of designing modern drainage systems is to deliver significant environmental benefits by mimicking natural rainfall-runoff processes for all events rather than just focusing on managing runoff for extreme conditions.

In recent years, surface water flooding resulting from intense rainfall and overflows from streams and rivers has caused significant economic damage and substantial distress for those whose properties and livelihoods have been affected. As the frequency of

Continued on page 36...

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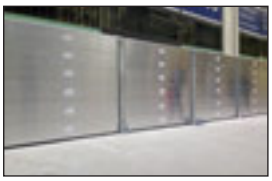

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Elvetham Heath development at Fleet. Swale/attenuation storage stormwater system

Photograph: R Kellagher, HR Wallingford (2005)

Continued from page 34...

river flooding and intense rainfall is projected to increase in the future with climate change, the problems associated with ineffective surface water management systems are expected to become greater. Reducing the risk of surface water flooding and flooding from streams and rivers is therefore an increasing priority for both the public and the government.

BS 8582 draws strongly on the benefits of using SuDS. The Water Framework Directive is a major legal driver for improving the quality of our water bodies which can, in part, be addressed by managing surface water runoff from developments effectively. The Flood and Water Management Act (Defra, 2010) requires the development of Standards and Guidance for the mandatory consideration of SuDS for all developments. There has been a substantial delay in the enactment of this legislation; nevertheless it is still expected to come into effect in England this year and all local authorities will need to have SuDS Approving Body (SABs) in place to assess drainage planning submissions are in compliance with requirements. Whereas the National Standards themselves and the supporting guidance are very high level, BS 8582 provides the required additional detail to enable developers and consultants to design appropriate drainage systems from the earliest stages of the design process. Probably the most radical element of the national standards is the extension from just hydraulics to water quality. Designers of surface water systems will need to consider explicitly how to provide effective treatment of the runoff to meet the standards.

BS 8582 also emphasises the need and importance for stakeholder engagement and the 'liveability' of our urban areas; making the best use of water in shaping the places in which we live and work. This is also in line with the best practice aspects of SuDS philosophy for the management of surface water. In particular, designers should consider the range of amenity and biodiversity benefits that can be delivered through the design of multi-functional systems that work with and for the development by adding environmental, aesthetic, societal and ultimately economic value.

The strong focus within BS 8582 on consultation and stakeholder engagement is aimed at achieving an integrated approach to the planning of the drainage system alongside the planning of the development layout, the transport infrastructure, the buildings and landscape. Consideration of the interests of all relevant parties will deliver holistic and sustainable drainage systems as well as better places to live. ■

Richard Kellagher and Bridget Woods-Ballard
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The Olympic Park, Stratford won the BALI 40th Anniversary Commemorative Award for Outstanding British Landscaping Excellence at the 2012 BALI Awards

The landscaping industry comes of age

The British Association of Landscape Industries (BALI) explains why the landscaping industry should now assume its rightful place alongside the construction industry...

An interesting phenomenon occurred back in 2005, following the announcement that the 2012 Olympic Games would be hosted in the UK. An enlightened and proactive campaign, instigated by the landscaping and horticulture industry to ensure there would be a 'green' legacy from this massive construction project, resulted in the campaign's steering committee providing their combined knowledge and expertise to help the planners do just that. In other words, the hitherto poor relation of the construction industry – landscaping – was, at last, having its voice heard and influencing at the highest level.

'Beyond 2012: Greening the Games' was an impressive demonstration of what industry collaboration and determination could achieve, not only for the benefit of the industry but, in this instance, for the environment and for those people left with the legacy of a major construction project, and the creation of public spaces, once the Olympics moved on.

The relationship between landscaping and construction goes back a long way, but during the second half of the 20th Century, soft landscaping was largely ignored by urban architects and planners in favour of hard landscaping, which they believed complemented their futuristic buildings and largely removed the maintenance burden.

It would be good to say that soft landscaping is now seen as an intrinsic part of any major housing or commercial development. Unfortunately, however, whilst construction plans submitted to the planning

MediaCityUK – the new home of the BBC in Manchester, won the Grand Award at the 2011 BALI National Landscape Awards

authorities include landscaping, and those plans are either accepted or rejected on the basis of the entire project, it is still the case with many private housing developments in particular that the landscape aspect is not fully implemented. It is a fact that by the time some builders get to the landscaping their funds have run out, or they simply don't appreciate the value that landscaped grounds add to a development and see it as an area where they can perhaps cut back and maximise profit.

Building land in urban areas is at a premium. With an expanding population to be housed, the pressure on the government to provide housing on every viable pocket of urban land is enormous. Gardens were designated as brownfield sites in 2000, and in the middle years of the last decade, larger gardens were identified for development with over 40% of new developments in the South East of England being built on former residential land. Existing homes were demolished and replaced with higher density housing within the same land footprint. Local councillors with housing targets to meet became powerless to prevent the over-development of neighbourhoods and the infill of green spaces.

The demand for off-street car parking also resulted in a significant loss of many front gardens and landscaped areas around offices, contributing to flooding, building subsidence, increased urban temperatures and a further degradation in urban quality of life. This state of affairs led to the development of SUDS technology (Sustainable Urban Drainage Systems), now a ubiquitous feature of many hard landscaped public spaces, and an upsurge in the use of tools such as green roofs to mitigate the impact of urban development, climate change, and the effects of extreme weather events.

When you add to these pressures, an over-burdened planning system with insufficient resources to ensure that every planning consent given is being carried out to the letter, right down to the landscaping, it is clear that the landscaping industry, and those of us with concern for the environmental and social effects of this potentially disastrous loss of green space, had a fight on its hands.

The Olympic Park, a project of unrivalled proportions in this country, certainly helped change the way in which landscaping was perceived on the wider stage

Continued to page 40...

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Continued from page 38...

– no longer as secondary to the built environment but as critically important to providing balance in an increasingly populous planet. The recent announcement by the Chancellor that a new Garden City is to be built in the Ebbsfleet Valley in Kent is further evidence that policy makers are now convinced of the importance of 'green infrastructure' to our health and wellbeing, and to the social cohesion of our urban communities.

So how has the landscaping industry reached the point at which it feels justified in seeking equal status with the construction industry – an industry that is tightly controlled by all manner of British legislation and EU directives?

"The Olympic Park, a project of unrivalled proportions in this country, certainly helped change the way in which landscaping was perceived on the wider stage – no longer as secondary to the built environment but as critically important to providing balance in an increasingly populous planet."

It was only a matter of time before the landscaping industry, so closely allied with construction in many areas, would itself become the victim of our risk-averse society – and rightly so. Back in 1972, landscaping contractors and suppliers felt the wind of change blowing their way. They realised that if they didn't do something about the industry's 'cowboy' image and actively professionalise their activities, they would be in no position to capitalise on the country's growing wealth. Their response was the formation of BALI (the British Association of Landscape Industries), which today is the largest trade association for landscape designers, landscape and grounds maintenance contractors and suppliers to the industry in the UK. It has over 750 members, which contribute an estimated £4.8bn to the country's GDP and is acknowledged as the voice of the industry. Contractors and designers can only achieve BALI membership after successful completion of a stringent vetting procedure, and must undergo a quality standards review at regular intervals thereafter to ensure the Association's high standards of workmanship and service are maintained. Through its membership of ELCA (the European Landscape Contractors Association), it also represents the UK landscaping industry's interests in Europe, and its officers are regularly asked to present to the European Parliament on proposed directives that would impact businesses in the UK.

As a driving force behind the 'Greening the Games' campaign back in the middle of the last decade, and whose members were responsible for creating the Queen Elizabeth Olympic Park, BALI believes that the landscaping industry has come of age and should now assume its rightful place alongside the construction industry in moving forward the agenda for change and delivering a sustainable balance between the built and green environments. ■

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The green green grass of communities

Tim Mudge, Chief Executive of the Turfgrass Growers Association explains the environmental benefits of using turfgrass in developments...

Although turfgrass has become a part of the landscape in the UK – part of our heritage in fact, the fight is still on for the creation and retention of green spaces, and we continue to encourage planners, developers and specifiers of the lasting quality-of-life and environmental benefits turfgrass brings to communities and individuals.

Turf is a unique ecosystem comprising not only the above-ground parts of the plant, but also the below-ground parts and, crucially, the soil it's growing in.

It's a system of biological interaction between grass plants and the living organisms within the soil, which forms a system of incredible complexity, diversity and activity, and explains the remarkable properties of turf.

Indeed, the benefits of turf to the environment are so wide-ranging that life as we know it could not exist without it:

- Turf absorbs rainfall and reduces run-off helping prevent localised flooding;
- It allows water to percolate through the soil profile into the aquifers below replenishing drinking water supplies;
- It produces oxygen and absorbs CO_2;
- It stores carbon in its roots and crowns, and locks it up in the form of humus;
- It cools the surface of the earth. In fact, a turf surface can be 10ºC cooler than a tarmac surface,

going some way to reduce the "urban heat island" effect;

- It filters and breaks down pollutants;
- It is the perfect playing surface for leisure and sport.

When it comes to choosing turf for any project, you can't ask too many questions. Making the right selection means the difference between a job done and a job well done.

Get to know your grower

Establishing a good relationship with your grower, ideally a member of the Turfgrass Growers Association or one of their distributors, is essential – after all, they want to supply you with the best turf for your project and you want nothing less than the best. Only by having a full understanding of end-users' requirements and the issues they face, can they ensure that turf growers continue to produce turf that meets the needs of those who manage it.

Right turf – right job

The choice of grass cultivars in turf has always been critical, but changing times have made it more so. Growers have for years been aware of the need for grasses that are more tolerant of drought, flood, turf diseases, shade, heavy traffic and, in coastal locations, salt. Seed producers invest heavily in their breeding programmes working hard to develop cultivars which will address the issues facing the users of turf in the future. Growers, as an end-user themselves, take a keen interest in these developments and work with seed companies in taking their developments through to the finished product. Ask your grower for a breakdown of the grass varieties in their turf.

Turf types

All turf is not the same! In the knowledge base on the TGA website, you'll find specifications for turf used for ornamental landscaping, for heavy traffic areas, and for general use.

Here are some of the specialist turf grades available for more demanding environments:

Tackling shade problems

Maintaining healthy turf in shaded areas can be particularly challenging as the lack of sunlight inhibits photosynthesis causing stress to the plant. Because some grass species are better at tolerating shade than others, some growers produce shade tolerant turf grown from Poa supina, a grass cultivar that flourishes in a shaded environment. Native to Alpine areas, Poa supina is the last grass to fall into dormancy and the first to grow actively in the spring. Lateral above-ground stems (Stolons) grow outwards from the main plant reproducing more shoots as it develops, enabling the plant to repair itself in a continuous manner.

Other factors must also be taken into consideration in shaded areas however. Increasing the height of cut increases the amount of leaf surface enabling the plant to take full advantage of the available light. If shade is caused by trees, the turf may be under increased stress from drought and nutrient deficiencies as tree roots take up any available moisture and

Rhizomatous tall fescue is hard-wearing with a deep green colour, and can withstand long periods of both drought and waterlogging

nutrients from the soil. If this is the case, additional watering and feeding may be required to keep the turf healthy.

Drought tolerance

Rhizomatous tall fescue produces rhizomes, an underground stem that grows outwards from the main plant, producing more shoots as it goes. In this way this type of turf has the ability to repair itself to produce and retain a dense sward.

It is hard-wearing with a deep green colour, and can withstand long periods of drought. It also has a remarkable root system that can grow down to a depth of 1.5 metres, giving it the ability to withstand periods of both drought and waterlogging. Even in severe drought, when other grass goes brown, tall fescues recover quickly with the first rain.

Reinforced turf

Reinforced turf is particularly useful for areas subjected to heavy wear, such as fire access roads, walkways, grass car parks, banks and play areas. There are several different variations available but they all consist of natural turf grown in to a synthetic fibre reinforced rootzone. This type of turf offers unbeatable strength and stability where it's needed most.

Wild flowers

For a splash of colour and to attract pollinating insects, don't forget that some growers also supply wild flower turf available as a mat of established plants that makes the creation of a wild flower area easier than sowing it from seed. ■

The Turfgrass Growers Association is the only professional organisation in the UK and Ireland dedicated to the advancement of quality turf production.

Since its formation, it has been at the forefront of raising the standard of the cultivated turf supplied to professional and domestic customers.

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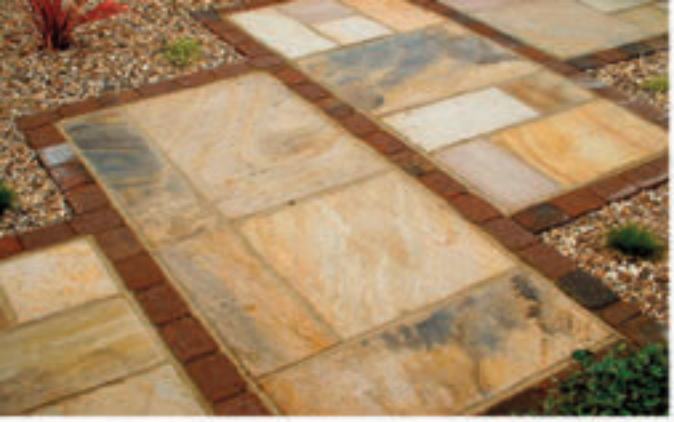

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Local skills – fit for purpose

Sarah Fenton Head of Local Sector Strategy at CITB describes how their new Joint Investment Strategy aims to tackle skills shortages at a local level...

Last autumn, the CITB announced a new £10m Joint Investment Strategy (JIS) targeted on the development of construction skills across the 8 core city Local Enterprise Partnership (LEP) areas and Greater London. £5m of CITB levy funding is being matched by £5m from Local Government funding sources.

To deliver this sector based approach to local skills needs, CITB is working closely with the LEPs and local authorities in London, Sheffield, Birmingham, Manchester, Bristol, Nottingham, Leeds, Liverpool and Newcastle, to firstly secure investment and then work with employers to determine the best use of the funding for each locality.

The strategy reflects the fact that construction is a key contributor to the economy. Working together, the industry and local government can help drive growth through skills and employment and in doing so reinforce the wider economy.

JIS gives employers and industry more direct ownership of skills. Currently, industry feedback suggests that employers skills needs are not being met as quickly and effectively as they'd like. At local levels there are considerable variations in skills needs, influenced by a variety of factors such as the local skills legacy, existing and planned construction workloads and educational course offerings. The JIS model provides the perfect opportunity to address employers' skills needs as well as filling local skills gaps.

The strategy will use industry research and intelligence such as CITB's Construction Skills Network to

Sarah Fenton
Head of Local Sector Strategy
CITB

tailor the training and skills offering to best suit the needs of the locality.

On the ground, the JIS will target 3 thematic areas of Growth through Business; People and Local Enablers and Drivers.

Industry objectives include:

- Business growth for construction SMEs;
- Reskilling unemployed construction workers;
- Engagement with NEETs;
- Supporting more clients to use the National Skills Academy for Construction's client based approach, to set and achieve targets for skills, employment and apprenticeships.

"At local levels there are considerable variations in skills needs, influenced by a variety of factors such as the local skills legacy, existing and planned construction workloads and educational course offerings."

The priority given to each of the thematic areas will vary according to the local need and availability of pre-existing programmes on offer. In some localities for example, there may already be a lot of programmes in place to reskill unemployed people for work. In that instance, the JIS might concentrate instead on SME growth. The idea is to avoid any duplication in terms of existing initiatives and offerings, and identify the gaps to focus on.

As the first programme of its kind, the Joint Investment Strategy sees construction employers taking greater ownership and leadership of their skills agenda at a local level. Through co-design, co-funding and co-delivery, employers, local government and CITB are coming together to provide real skills solutions. A system for sharing best practice across the cities will be set up and there will also be an independent impact evaluation on each locality to inform future working. The first schemes will become operational in London and Sheffield this spring with other areas coming on board later in the year.

To date, there has been a great deal of enthusiasm and optimism from all of the nine localities who are keen to engage in the strategy. The biggest hurdle thus far for local governments has been sourcing the match funding. There are numerous funding pots available to local government however, accessing these and the criteria that come with them, is part of the difficulty. It's often a case of square peg, round hole. There will always be challenges in breaking new ground and moving to new ways of working. It is encouraging that local government are being enabled to respond to this as they wish, and are eager to do so. Working with existing systems and funding schemes can be challenging and frustrating for all involved.

With willingness on both sides, the JIS model can benefit both industry and local government. It will supply employers with the skilled employees they need and help local economies by getting people back into employment and building a strong skills base that's fit for purpose. ■

Sarah Fenton
Head of Local Sector Strategy
CITB
www.citb.co.uk

Conserving our heritage

Addressing the challenge of making heritage assets work


Alan Piper

Many towns have the potential for economic revival based on their heritage assets – listed buildings, historic sites and the wider background provided by conservation areas. Communities often campaign for a landmark building to be listed for its historic interest, but listing is only the start.

The greatest challenge is finding ways for that building to earn its keep. Yet with the right uses and presentation, it can be a focal point for wider regeneration and a real asset to the surrounding community.

In recent years, eminent heritage bodies have abandoned the Regency gentry's aversion to "trade" and become more sympathetic to business uses providing the income stream to maintain a listed building or local landmark. Even so, they will still wish to see efforts made to maintain community support and promote wider understanding of the building's significance.

When you need Friends

The initial impetus to retain a landmark building often comes from local enthusiasts organising themselves into a Friends group to support it. This was brought home to me a few years ago when the Friends group for an Edwardian library asked me to prepare an application for Listed Building Consent to restore some of the original signage.

Friends can contribute practical help or attract extra capital funding – but for new services or better facilities rather than to maintain the core service.

National Lottery funds and charitable trusts have been important resources for voluntary groups to draw upon, but such funders are rightly reluctant to subsidise the public sector. Most funders now expect to see well-developed business plans to convince them that any rescued building or amenity can survive in the longer term. Any realistic bid will demand collaboration between different interests, to consider what mix of services and attractions will be practical. Some of these may spin off as community projects or social enterprises, attracting other funding streams.

Making Conservation Areas Work

We have had Conservation Areas in our towns for over 40 years, but they have tended to restrict development rather than promote it. Many of the early conservation areas were Georgian squares and the like, where the priority should be maintaining a uniform character. Others are parks and gardens where the presumption should be against cluttering them with extra buildings. Developments in such areas are often exercises in camouflage.

However some now cover commercial town centres, where the need is to balance commercial vitality with maintaining the distinctive character. In such town centres, the key is encouraging variety while respecting the scale and context – otherwise the risk is that a big new block will dominate, whatever its style or colour scheme.

Councils find it easier to apply uniform design policies across the whole borough, but each conservation area needs its own guidelines which identify what is special about it. Better still if they also provide a vision of how it can be improved and nurtured.

Here to Help

Contact Alan Piper for advice on single properties or groups of buildings, and in particular for:

- Building condition surveys.
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- Applications for Listed Building Consent or planning permission.
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BrIMming with opportunities

Professor David Philp, Head of BIM at Mace focusses attention on the challenges to achieving Level 2 BIM by 2016, but also the benefits it creates for construction delivery...

The H.M. Government "pull" for Level 2 Building Information Modelling (BIM) on all centrally procured projects by 2016 has been a catalyst for change in the UK built environment. Coupled with a need for 'Soft Landings', we are focusing on operational outcomes supported by digital data sets to unlock better outcomes at all stages of the asset life-cycle, especially in ensuring a better user experience.

The Level 2 BIM challenges are diminishing all the time, and the heavy lifting around the processes have been completed by B.S.I. who have published both PAS1192:2 and PAS1192:3, which look at information management and exchanges in the asset lifecycle. To make these work, it is essential that a common data environment is established right from the outset with strong governance, especially around classification systems and naming conventions.

It is crucial also that the models are looked at through the lens of all the participants on the project. We often see models that are purely design driven without thought to the other elements of construction delivery and use cases such as digital quantity take-off or project scheduling. We regularly need to repurpose these models or create a parallel construction model that has the appropriate level of detail and elemental indexation to facilitate other work-flows.

Level 2 is also about the creation of structured data and information exchanges, and like most organisations we have been on a learning curve. Level 2 requires us to produce COBie UK 2012 as a neutral information exchange platform and we have been exploring the different ways of generating and validating this. Key is our BIM execution plan which looks at how much detail, and when it is needed, as well as who manages the exchanges. Level 2 BIM has made us more proficient in not just information modelling, but also information management.

"We often see models that are purely design driven without thought to the other elements of construction delivery and use cases such as digital quantity take-off or project scheduling."

BIM is becoming the new norm within our business and it is helping us enhance outcomes in safety, efficiency, and sustainability through a collaborative working environment. The 3D model is being used to rehearse the build sequence, and by adding the time component (4D), we are able to simulate and co-ordinate the construction sequence and logistical solutions. This also leads to better understanding by the supply chain as we use the model environment as a briefing tool and increasingly use it to create visual method statements. Essentially we are building better before we start to build – once in the model, removing waste then again perfectly on site with confidence that the constructability and co-ordination issues have been ameliorated. This was demonstrated on the 240 Blackfriars Road project – a 19-storey office building for Great Portland Estates where we have used BIM to reduce the allocation of 5% for builders work associated with the M&E installation to 2.5%. By using BIM to co-ordinate the design, and virtually simulate the construction process, the risk pricing allocation of £2m was reduced to

David Philp FRICS FCIOB
Head of BIM at Mace, Head of BIM Implementation, HM Government BIM Task Group

£0.5m because risks could be much more easily identified with BIM.

Level 2 BIM and Soft Landings are a key enabling strategy for us, and we have developed a business model around it called ALi360 (Asset Life-cycle Integration). This is pivotal to the mission of operational excellence; it utilises digital tools, integrated processes and structured data sets to visualise, simulate and optimise the asset. This is underpinned by our people and culture of innovation and collaborative working.

Developing our processes, data definitions and creating a capable, digitally informed team has not only led to repeated savings and reduced risk, but also cemented us as a recognised leader in innovative working.

We are implementing the ALi360 on a number of projects in the UK and internationally. The €1.45bn Gutenborg project in St Petersburg, Russia, which has a Level 2 BIM maturity level, is using this initiative as a collaborative software and business process to facilitate the project delivery to challenging timescales.

The Gutenborg project is a beacon of best practice in the residential construction sector. It responds to Russia's demand for high volume and high quality housing, and it addresses many of the challenges that currently face the residential construction sector in terms of efficiency.

The BIM data and subsequent processes facilitate the coordination and the interface between those designing vertical build, horizontal infrastructure and public realm, as well as managing the operation of Gutenborg throughout its lifecycle. It is also being used for cost management and schedule control.

It is therefore essential that we provide our employees with training under our BIM educational framework that we have developed. We run hands-on awareness sessions and with respect to Level 2 BIM, we run an in-house certified training programme in conjunction with Glasgow Caledonian University. This offering is also available to our supply chain and clients via the Mace Business School.

Our BIM Team from across our business are also increasingly looking beyond construction delivery, to how BIM is integrated with the CAFM system and Building Management Systems and through predictive modelling to ensure not just better maintenance, but better asset performance. Indeed, as we look to the future through our innovation programme – asset telemetry – we believe will be of key importance, embedding sensors into the structure to ensure continuous monitoring and to facilitate future adaptability.

So will Level 2 BIM be a reality by 2016? From our perspective undoubtedly we want to shape a better future for our industry and BIM is a key enabler to making it happen. ■

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Integrate, communicate and succeed

A successful construction project has many elements and many professionals, here, Dr Graham Couchman, CEO of the SCI highlights the importance of communication and team integration...

The aim of any construction project is to produce a building, or bridge, or other form of construction. It is not to produce a set of designs, nor is it to produce some components. But despite this ultimate aim the supply chain will invariably be split up, to a greater or lesser extent, into those undertaking aspects of design and specification, and those undertaking the physical construction. To facilitate buildability, and to get the most out of components working together, it is important that the different design teams and construction teams 'talk' to each other.

Although the advent of BIM should help to improve communication, other trends in recent times have had a negative effect. Supply chains now include numerous specialist suppliers, and products have become so refined that they may rely on adjacent components in order to work properly. The simple portal frame industrial building is a good example – the purlins are essentially there to support the cladding, yet they also provide lateral restraint to the primary frames. Whilst the cladding is there to keep the external environment at bay, it also serves to restrain the purlins. Yet in the extreme, the frames, purlins and cladding will all be designed/specified by different teams. Will one team know the assumptions made by the others? Will the construction team know the method of construction needed in order to ensure the components work together as intended?

Dr Graham Couchman
CEO
Steel Construction Institute

Experience would suggest the answer to those questions is not always yes. In addition to the potential problems created by these more refined products, there has been a trend for many engineers to become more specialist, so they may not have the breadth of exposure, and therefore understanding that their predecessors had.

"To facilitate buildability, and to get the most out of components working together, it is important that the different design teams and construction teams 'talk' to each other."

In late 2013, SCI (Steel Construction Institute) organised a seminar to look at this very topic. Guest speakers looked at the subject from different perspectives, and with different experiences. The London Olympic Velodrome had previously been acclaimed (at the Structural Steel Design Awards) for the way in which the design and construction teams worked together. This integration enabled the velodrome to be delivered to tight timescales and achieve strict sustainability targets, with minimal use of materials through optimal design. A major steelwork contractor highlighted some issues with BIM, noting that despite the aspiration that one virtual model passed between teams will help each to clearly understand the workings of the others, there often remain problems of 'my software can't (fully) understand what yours is telling it'. A major contractor highlighted one example where the construction practice recommended by a product supplier had an adverse effect on flexibility for construction – this sounds like an obvious 'mistake', but without understanding real issues of practical construction it would be easy to miss.

Asking our members about this subject revealed some generic problems that anybody involved in design would do well to recognise and address. Communication is essential; make sure everybody knows what the ultimate goal is; understand how 'it' will be built when trying to design 'it' and have a process to communicate (inevitable) changes. Money is a problem; other members of the team should be engaged with early on, but if they are not being paid to contribute (or perhaps haven't been appointed yet) it will be difficult. Having members of the design team working on site is extremely useful, but costs money. The procurement process often results in a wall between design and construction teams.

So it can be a challenge to get good team integration, but there are plenty of examples which demonstrate that when the integration is good the result will also be good. There are plenty of examples from the SCI Advisory Desk which demonstrate that when integration is not good, problems may result on site, and these can cost much more to remedy than the cost of integration. ■

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Eurocode 5 – the journey continues

Dr Keerthi Ranasinghe, Principal Structural Engineer and Eurocodes Consultant with BM TRADA provides guidance on bridging the gap to Eurocode 5 compliance...

Harmonisation of European standards is necessary to ensure that all member states share the same technical expectations and that businesses operate on a level playing field. However, drawing up standards that satisfy the various requirements of different member states is a lengthy and highly complex task, as anybody who works in structural engineering will know. This is certainly the case for the new Eurocode for the design of timber structures (EC5).

On 1st October 2013, the Department for Communities and Local Government (DCLG) announced the publication of a new Approved Document A – Structure (ADA), which includes consideration of the July 2013 amendments to the Building Regulations of 2004. From a Eurocodes perspective this announcement was eagerly anticipated by all the structural materials sectors in that it was expected that Eurocodes would now be fully endorsed by this latest ADA.

Reference to Eurocodes in this latest edition of ADA is made thus; "The British Standards Institution notified the British Standards for structural design referenced in the 2004 edition of this Approved Document as withdrawn on 31 March 2010. British Standards for structural design based upon the Eurocodes were correspondingly implemented by the British Standards Institution on 1 April 2010 and it is these standards with their UK National Annexes

Dr Keerthi Ranasinghe
Principal Structural Engineer and Eurocodes Consultant

which are now referenced in the Approved Document as practical guidance on meeting Part A requirements." BM TRADA considers this to be a significant improvement from the previous guidance and sees this as a clear indication of the direction one should take in the use of structural design standards.

Bear in mind that the ADA is not the only means of meeting the part A requirements and this is alluded to in the next paragraph of the ADA as follows; "There may be alternative ways of achieving compliance with the requirements and there might be cases where it can be demonstrated that the use of withdrawn standards no longer maintained by the British Standards Institution continues to meet Part A requirements."

Other commentators have discussed elsewhere the legality and the wisdom of using withdrawn standards. For several years, TRADA (The Timber Research and Development Association) has recommended using Eurocode 5 for timber designs wherever possible, and will continue to do so. All our publications now reflect this recommendation and mention the withdrawn BS 5268 suite of standards only in a legacy context. There is good reason for this. Many experts – including some from BM TRADA – contribute time and knowledge towards maintaining standards and as a result, the standards are continually improving. This is especially true for relatively new standards such as Eurocode 5 that are nourished by the latest research output from across Europe. Since its first publication (for comments) in 1994, Eurocode 5 has undergone several amendments, but discussions on further amendments are taking place both at National and at European level. Using the Eurocode enables designers to keep abreast of all the new developments in the structural timber world and stay ahead of the competition.

Designers in the UK are required to familiarise themselves with the following documents when designing to Eurocode 5:

- BS EN 1995-1-1 (General), BS EN 1995-1-2 (Fire) and BS EN 1995-2 (Bridges), as appropriate;
- The UK National Annexes to the above 3 documents as appropriate;
- The Published Document 6693-1 (PD 6693), a UK NCCI document for Eurocode 5.

Taken together, these 3 sets of documents conveniently replace the BS 5268 suite of standards for structural timber design. Previous articles from BM TRADA have discussed the similarities and differences between BS 5268 and Eurocode 5 and it is not our intention to repeat this discussion here. However, PD6693 is less well known.

The UK timber industry, through a number of technical committees determined the content of PD 6693, and the document was published in October 2012 with an amendment released in February 2013. Whereas the UK National Annexes to the various parts of Eurocode 5 merely present the UK choice for certain Eurocode 5 clauses as allowed for within that particular Eurocode, PD 6693 goes beyond this to include useful guidance on matters not discussed elsewhere within the Eurocodes.

PD 6693 should now act as a 'bridge' between BS 5268 and Eurocode 5 by filling some of the UK 'gaps' created by the transition from BS 5268 to Eurocode

5. Here are some examples of the useful guidance given in the document:

- Temperate hardwoods (Oak and Sweet Chestnut) graded to BS5756 are assigned to BS EN 338; strength classes, removing a barrier for UK designers to the use of these species in Eurocode 5 design calculations;

- Assignment of large cross section British grown Douglas fir to strength class C24 is also permitted in PD 6693. This was allowed in BS 5268 but was not mentioned in Eurocode 5 as it is a national matter only relevant to the UK;

- Guidance is given on the design of horizontally glued laminated hardwood members;

- Guidance is given on the effective lengths of compression members;

- Familiar limits on notches and circular holes in joists and studs are given, together with new design guidance for beams with circular holes.

PD 6693 also helps in clarifying certain Eurocode 5 clauses. For example, the assessment of diameters of screws for Eurocode 5 calculations, which is not properly discussed in Eurocode 5, is clearly explained in PD 6693. This removes an apparent obstacle faced by the UK industry in using some of the modern types of screws in Eurocode 5 design calculations.

PD 6693 also presents the preferred method of racking calculations for the UK timber frame industry, which has been the subject of many debates and discussions for several years. Calibration exercises are currently being carried out by the BSI committee and it is expected the results of these will improve the method for future use.

Even with all these new publications and recent developments it will still take another few years to sort out all the 'teething problems' of implementing Eurocode 5. For example, some TRADA members have already commented on the apparently high loads and seemingly reduced material strengths that result from following the Eurocode 5 guidelines. BM TRADA is currently consulting the BSI committee on this and hope to produce guidance to overcome these issues while keeping within the Eurocode 5 recommendations. ■

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NHBC – the value of being registered

NHBC outline the benefits to being registered with the UK's leading warranty and insurance provider...

With recent NHBC registration statistics showing a 28% increase in 2013 over the previous year and demand for new homes growing steadily, confidence is at last returning to the house building industry, and especially for those that are registered.

For builders, there are a host of benefits that come with being registered. The added value to your business is considerable, from technical support and assistance at every stage of development, to research through the NHBC Foundation, and expert guidance for regulatory compliance – building control, health and safety, sustainability, energy services, air leakage, and acoustics.

And continuing the offer from last year, for every new site registered between 1st April 2014 and 31st March 2015, NHBC will continue to provide site boards, flagpoles and flags free of charge, helping to make each site more visible and attractive and demonstrating commitment to working with NHBC's standards.

But the added value doesn't stop there. NHBC has been investing in online and mobile solutions that make managing sites easier and faster. The foundation depth calculator app, launched for IOS and Windows OS in 2013, is now also available on Android. It provides registered builders with an effective field based tool to assess tree types and calculate the required foundation depth as specified in NHBC Standards chapter 4.2.

And to drive future improvements in house building, access is also provided to the ultimate in home-

owner feedback data and benchmarking. With over 100,000 customer satisfaction surveys sent out annually, and an average response rate of around 60%, our survey data is robust and meaningful and gives house builders customer satisfaction insight on an unrivalled scale. Carried out at 8 weeks and 9 months after legal completion, the responses from homeowners are visible to review within 24 hours of feedback via an online portal.

Online solutions also offer something extra for homeowners too. NHBC HUG is a co-branded online tool where all the information needed to move in and run a new home is available at the click of a mouse, and is only available with Buildmark warranty. HUG comes pre-completed with general information, and can then be tailored to the development and individual plot to make a really useful, bespoke home user guide.

As the signs of recovery in the house building industry look ever more positive, NHBC remains a key partner to builders by providing these services and products to help with regulatory compliance, improve customer satisfaction and add value. For a full list of benefits, please see the shaded box below.

For more information on becoming an NHBC registered builder or any of the listed benefits, please visit www.nhbc.co.uk/renewals or call 0844 633 1000 and ask for 'annual renewal'. ■

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Added value for builders

These benefits are only available to NHBC registered builders:

Flying the flag – a free NHBC flag, flagpole and site board for all new sites registered with us between 1st April 2014 and 31st March 2015.

Research and guidance – NHBC Foundation provides high-quality research and practical guidance to support the house-building industry as it addresses the challenges of delivering 21st Century new homes.

Technical expertise – all registered builders who are actively building will receive a copy of the printed Standards, the supplementary Technical Extra, a CD copy (on request), and 24/7access to the fully interactive, online version through Standards Plus.

NHBC Building Control – providing building control to the majority of new homes across England and Wales, registered builders receive competitive rates when taking Warranty and Building Control from NHBC.

NHBC HUG – the new Home User Guide provides your homeowners with online access to the information they need to run their home.

Keep up to date with news – free sign-up to the Clicks and Mortar and SafetyNET e-bulletins.

Rewarding excellence – Pride in the Job is the only UK-wide competition dedicated to recognising site managers who achieve the highest standards in house building, and the NHBC Health and Safety Awards are the UK's only health and safety awards scheme exclusively for house builders.

Managing Buildmark acceptance online – accept Buildmark cover online, reducing administration while also saving time and money.

Customer Satisfaction Survey – find out what your customers really think about your work, your standards and your service through an online portal.

Help to sell your properties – the iProperty Company, in conjunction with NHBC, has developed an online platform for registered builders to market properties free of charge, and automatically gain a maximum 5 star rating, which will improve its ranking in search results.

Assessing the Legionella risk

Jon Murthy, Marketing Manager at UKAS outlines the importance of carrying out accredited Legionella risk assessments...

Preventing incidents of Legionnaires' Disease is a priority for anyone who is responsible for managing premises that utilise wet cooling systems, process water systems and domestic hot and cold services.

Each year in the UK there are around 500 cases of Legionnaires' Disease reported, approximately 35 of which are fatal. Nearly all outbreaks of Legionnaires' disease can be attributed to a failing in management control of some kind. The majority of organisations do not have the in-house resources to assess and tackle the threat of Legionella sufficiently, so will utilise the services of specialist risk assessment companies. The key question then becomes how can procurers be sure that the services on offer are fit for purpose and will help them to discharge their legal obligations? The answer, increasingly, is accreditation.

Accreditation

Under EU legislation, every country has a single National Accreditation Body (NAB), whose role is to carry out the independent third-party assessment of organisations that offer testing, calibration, inspection and certification services. The United Kingdom Accreditation Service (UKAS) has been the UK's NAB since its formation in 1995. Its role is to check that organisations providing certification, testing, inspection and calibration services are meeting a required standard of performance. By effectively checking the checkers, the process of accreditation determines in the public interest the technical competence and integrity of companies offering these assessment services.

The assessment criteria used by UKAS are internationally recognised as being the best indicators of accurate, impartial and consistent performance. During each of the visits the organisation will have to demonstrate that it is technically competent, that its staff is suitably qualified, its working practices are fit for purpose, and the appropriate equipment is being used. But how does this apply specifically to Legionella risk assessment?

Accredited Legionella Risk Assessment

UKAS, together with industry and other relevant stakeholders, has helped to develop a framework

for accrediting Legionella risk assessments under both British Standard BS 8580:2010 (Water Quality – Risk assessments for Legionella control – Code of Practice) and ISO/IEC 17020 (General criteria for the operation of various types of bodies performing inspection). The British Standard has been produced in order to underpin The Health and Safety Executive (HSE) Approved Code of Practice and guidance document L8 (Legionnaires' Disease: The control of Legionella bacteria in water systems). ISO/IEC 17020 is the internationally recognised standard that sets out the requirements for organisations performing inspection. In addition to being specifically aimed at inspection services, ISO/IEC 17020 includes an assessment of an organisation's technical competence – a key differentiator over the commonly held ISO 9001 quality management standard.

The HSE acknowledges that the BS 8580 scheme is a positive step in the health and safety management of legionellosis. Whilst being accredited for Legionella risk assessment is not mandatory, there is a drive towards companies offering these services having to prove their competence. As one of the first companies to achieve accreditation under the new BS 8580 standard, The RPS Group is ideally placed to assess the impact that accreditation has on customer confidence. Mike Rose, Commercial Director at RPS said. "Initially clients were seeking assurance that our assessments complied with the HSE L8 guidance, whereas now they are asking if we are accredited to BS 8580, as this is the first heavyweight standard for our industry. This indicates that whilst it may not yet be a legal requirement, being accredited for Legionella risk assessment is fast becoming a business requirement."

Conducting Legionella risk assessments with impartiality and integrity are key components of the new BS 8580 standard. Mike Rose continues: "In the past procurers have had very little guidance over what constitutes a suitable and sufficient Legionella risk assessment. They may have had a suspicion that some companies providing the full package of assessment and remediation services have been offering assessment services at below cost price, safe in the knowledge that they will profit from any remedial works that their assessment identifies. UKAS accreditation assures clients of our integrity and that the assessment report provided will be an unbiased appraisal of the Legionella risk in that particular building."

Benefits of Accreditation

Beyond giving organisations confidence in the quality and integrity of services they are procuring, using UKAS accredited services can provide them with other more tangible benefits, as Mike Rose outlines. "It goes without saying that the main motivation for assessing Legionella risk is the health of employees, building users and general public. However, there are also sound financial reasons for preventing outbreaks of Legionnaires' Disease. Firstly there are the financial costs of being successfully prosecuted such as legal fees and fines to consider. But perhaps more importantly, the negative impact on an organisation's reputation can be very damaging in the long run, especially within the public sector." Using an accredited provider can also help demonstrate due diligence in the event of a claim.

Further information about the accreditation of Legionella risk assessment activities can be found on the UKAS website at www.ukas.com ■

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A window to safety

The NHBC Techzone provide guidance for the appropriate requirements for the fitting of French windows...

All designers, builders and building control professionals are familiar with the Building Regulations and the Approved Documents which support the functional requirements, and desired outcomes set by them.

However, there are more than a few areas and scenarios where the guidance in the approved documents either doesn't cover a situation, or the proposal to meet the functional requirements does not exactly fit the exemplar situation demonstrated in the Approved Documents or other guidance referenced in them. In situations such as this it is down to the building control body to make a judgement on whether the suggested solution meets the functional requirements or not, and this can often lead to uncertainty and indeed different interpretations between builders and building control bodies.

Where situations like this exist, NHBC works with government and other building control bodies, through the Building Control Alliance (BCA) to develop common guidance which can be used by industry to demonstrate compliance. BCA Guidance Notes are endorsed by the Association of Consultant Approved Inspectors (ACAI) and Local Authority Building Control (LABC).

One situation which occurs more often than you think is that of French windows, and window openings above ground floor which have low cill heights, and the BCA have recently published guidance in this area.

The Approved Documents provide recommendations for the minimum height of windows above floor level and guarding for windows where they fall below these levels.

Increasingly, designers are incorporating deeper windows or French doors with low level cills into their dwelling designs. The cills to these windows can provide platforms to aid clime ability by children. As such, the recommendations for guarding height to windows may not be appropriate to afford the safety of the occupants and achieve compliance with the functional requirements.

French windows

When considering guarding to French windows, a minimum guard height of 1100mm measured from finished floor level is required to ensure adequate protection from falling. This figure is almost consistent with the guidance given in BS 8213-1 which recommends 1120mm high guarding for French windows (when sited above ground floor level).

Where an upstand is formed (up to 300mm high) to the base of the opening, then an 800mm guard height should be maintained above this level.

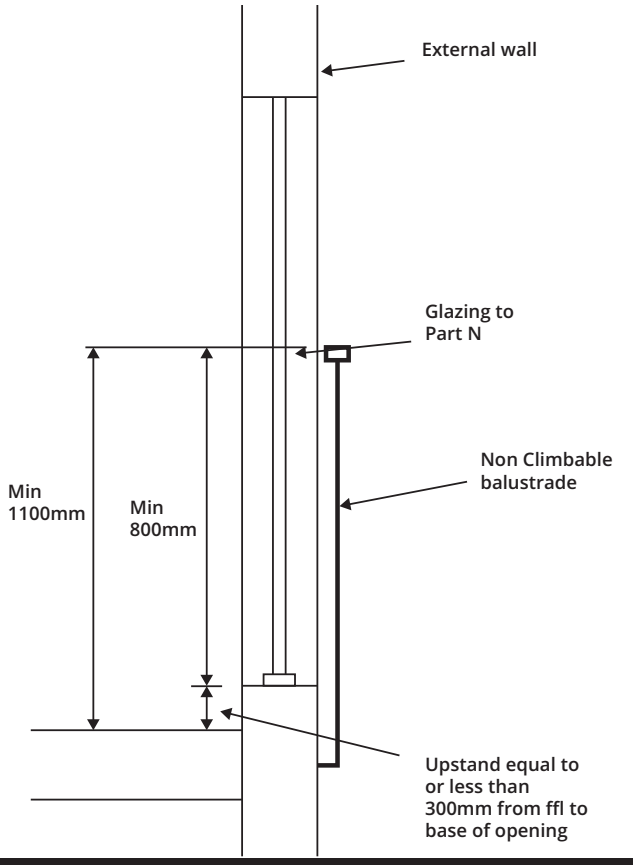

Diagram 1 – Window openings in external walls with cill heights between 300mm and 800mm above finished floor level

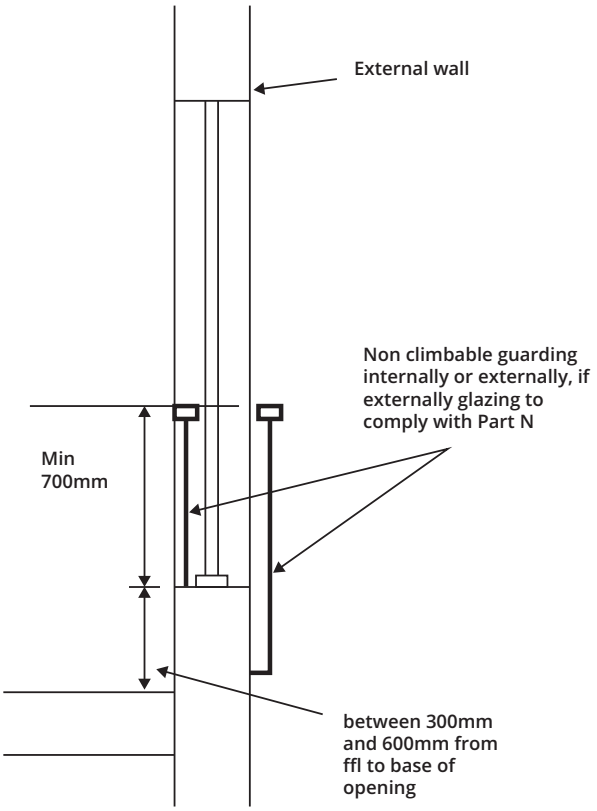

Diagram 2 – Indicates acceptable guarding arrangements where parapet heights are between 300mm and 600mm above finished floor level

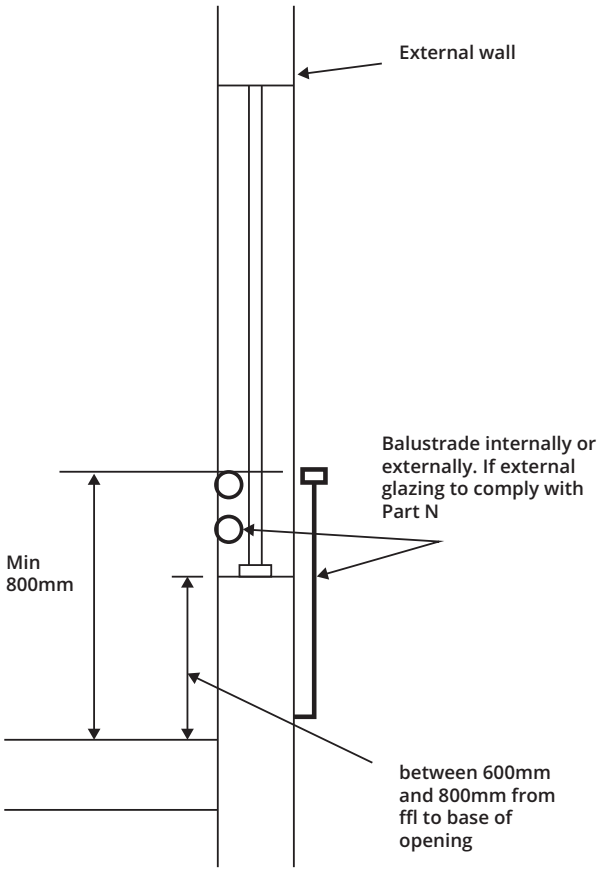

Diagram 3 – Indicates acceptable guarding arrangements where parapet heights are between 600mm and 800mm above finished floor level

According to ChildData (1), 50% of 4 year old children can step up 410mm, and 3% can step up 550mm. Any cill height lower than 600mm may therefore, be considered climbable by children.

According to ChildData, only 5% of 4 year old children are taller than 1200mm so most would be fairly stable standing on an up stand if a minimum guard height of 700mm were to be maintained.

When considering balcony floor level, account need not be taken of fixed furniture such as window seating.

Note: Where the overall guard height exceeds 1100mm from finished floor level, this will conflict with the maximum 1100mm dimension required for the window to be suitable for escape. A check should be made in these circumstances to ensure that there is an alternative window in the room suitable for escape or that a suitable protected escape route has been provided.

Window restrictors

Window restrictors are not considered to be an alternative to a permanent guard in any of the diagrams in this guide. Reference should be made to BCA Guidance Note 1 – Glass guarding and restrictors to low level windows above ground floor level in dwellings. ■

BCA Guidance Notes can be downloaded for free from www.buildingcontrolalliance.org

http://ncb.org.uk/childdata

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6 MAY

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Closing the Performance Gap

Rob Pannell, MD of the Zero Carbon Hub presents the initial findings of an industry-wide project that is investigating the causes of the energy Performance Gap in new homes, and developing potential solutions to close it...

There is now clear evidence of a 'Performance Gap' between the as-designed and as-built energy performance of new homes. This gap occurs when a constructed home requires more energy than was predicted based on its design – even without taking into account the behaviour of occupants. The Performance Gap can arise due to issues at various stages of the house-building process – from planning and concept design through detailed design, energy modelling, procurement, construction and commissioning, to testing and verification.

Why is the Performance Gap important and what is being done?

The Performance Gap creates a number of potential risks affecting government, residents and industry:

- Impacting on national carbon budget targets and meaning that future Zero Carbon homes targets may not be met in practice;
- Leading to higher than expected energy bills; and
- Undermining buyer confidence in new (low carbon) homes and the reputations of those involved in their development, potentially including planners, designers and building control as well as manufacturers, house-builders and others.

Investigation into the Performance Gap is therefore a priority for government and for the house-building industry. Back in 2011, a Zero Carbon Hub task group advised government that future Building Regulation requirements for Zero Carbon homes should be linked to 'as-built' performance, and set the following '2020 ambition':

'From 2020, to be able to demonstrate that at least 90% of all new homes will meet or perform better than the designed energy/carbon performance.'

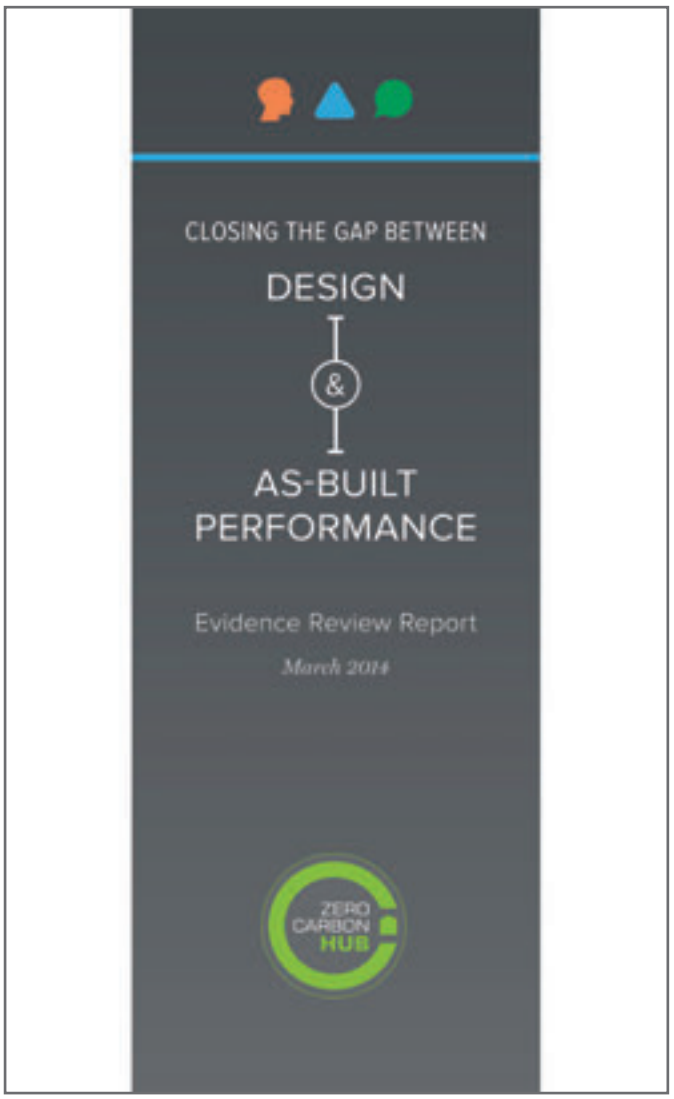
Since the start of 2013, over 140 professionals from across the industry have been working with the Zero Carbon Hub on a government-funded project to explore the potential causes of the Performance Gap and to develop cost-effective and realistic proposals to help close it.

What has the project found, and why should planners and Building Control be interested?

So far, the project has focused on collecting evidence to identify the most significant issues which are contributing to the Performance Gap. This will allow industry, including planners and building control bodies, to concentrate on developing ways to tackle these priority issues.

A large body of published research has been reviewed, and detailed investigations of nearly 100 plots from across 9 current housing developments have been undertaken, including interviews, site visits and audits of SAP assessments. Based on this evidence, 15 issues have been identified as priorities for action, as well as 17 others which may have a significant impact but require further research, and 23 more which are believed to have a lower impact.

The high priority issues appear across the entire house-building process and are not the responsibility of a single discipline. They share common themes of a need for improved knowledge and skills, responsibility for energy performance, and communication.



Several relate specifically to the planning and verification stages of the development process:

- Planning and concept design teams are not sufficiently aware of the impacts of early stage design decisions on the energy performance of completed dwellings. This might include aesthetically-driven choices such as form, roof shapes, orientation, layout and materials or variations to standard housetypes;

- Verification procedures are not sufficiently prioritising energy performance. This may be due to reliance on third-party information or lack of time, knowledge and incentives;

- Inconsistent evidence is being requested by, and provided to building control bodies. This results in uncertainty around the actual constructed specification and performance.

More information on each of the issues can be found in the recently published 'Closing the Gap Between Design and As-Built Performance: Evidence Review Report', shown in the image opposite, which can be downloaded from www.zerocarbonhub.org.

What is happening next?

The next stage of the project will gather further evidence, in particular from additional site investigations, and will identify research strategies for issues which are less well-evidenced. However, the main focus is on developing solutions for the priority issues. This will include proposals for mechanisms to ensure that the 2020 ambition for closing the Performance Gap will be met, which are likely to be of particular interest to building control and planning professionals.

The current project concludes in summer 2014, when its findings, proposed solutions and recommendations will be presented in a final report – please watch out for this on the Zero Carbon Hub's website. However, efforts to tackle the Performance Gap will require action from all parts of industry over the longer term, as part of the journey to zero carbon homes in 2016 and to meet the 2020 goal. ■

The Zero Carbon Hub is an independent non-profit organisation. Its primary aim is to support the mainstream delivery of low and Zero Carbon homes in England. To keep updated on progress from the project assessing the Performance Gap sign up to our newsletter through their website – www.zerocarbonhub.org.

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Image: Inside Out Architecture

The energy efficient solution

Nick Devlin and Sally Godber – Passivhaus experts, detail the zero carbon challenges and how Passivhaus can deliver energy efficient buildings...

"We have an addiction to fossil fuels, and it's not sustainable." David Mackay (chief scientific adviser to the UK Department of Energy and Climate Change).

Whether the issue is climate change, energy security or simply being able to afford to pay your bills, energy concerns affect us all. Over 40% of the total energy consumed in Europe is used for the generation of heat for either domestic or industrial purposes. The vast majority of this energy is produced through the combustion of finite fossil fuel resources and it is clear that we need less reliance on them. There is much uncertainty surrounding what a zero carbon/energy resilient Britain will look like, but all potential scenarios fail where we don't address efficiency first.

In David MacKay's 'Sustainability without the hot air'[1] he identifies a route map for a potential zero carbon solution for the UK. This relies on previously unseen industrial scale solar farms in North Africa, a significant expansion of the UK wind and nuclear industries, and unrealistic transfer of farming land to fuel biomass and fuel production. The impact on the UK landscape is depressing, many of the technologies remain unproven, and yet this approach still fails to meet our growing thirst for energy. In comparison, reducing our energy needs in the first place is technically achievable and when looking at the medium to long term costs, less expensive than investing in big infrastructure.

This is where Passivhaus really stands out. Designing to the Passivhaus standard addresses energy efficiency first, and has a proven track record of delivering low carbon buildings that perform.

Performance Gap

There is extensive interest in the performance gap in the UK right now. The performance gap describes the well-recognised disparity between designed and as-built performance for our new building stock. Unfortunately this is something we have had direct experience of; not just buildings missing energy targets, but also complex 'carbon saving' biomass systems that refuse to work, heat pumps and solar controls fighting each other, resulting in unforeseen costs, energy consumption and disappointed stakeholders (especially us). The 'performance gap' of such a complex technological approach to low carbon buildings, together with a lack of design and

Continued to page 70...

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Continued from page 68...

construction rigor will continue to result in buildings that fail to meet their designed performance.

Passivhaus in comparison is based on experience of what works. This means when we promise a low energy building, we have the confidence that it will be.

So what is Passivhaus?

Passivhaus is a low energy building standard developed by the Passivhaus Institut in Darmstadt, Germany. The first buildings were constructed in 1991 and over the last 20 years, more than 20,000 buildings have been constructed to the standard and approximately a quarter of these have been formally certified.

The standard defines a maximum space heating or cooling demand whilst maintaining excellent indoor air quality and comfort levels. The demonstrable improvement in occupant comfort standards, air quality etc are all tangible and have a direct impact on peoples quality of life.

The maximum space heating demand is 15kWh/m².yr and represents approximately a 75% reduction compared to 2010 UK Building Regulations compliance for dwellings. The standard can be applied to nearly all building types including residential developments, retail, care-homes, hospitals, offices, schools and swimming pools.

There is much uncertainty surrounding what a zero carbon/energy resilient Britain will look like, but all potential scenarios fail where we don't address efficiency first.

The principal of Passivhaus is simple; it relies on stopping heat loss through preventing drafts and insulating well. Sounds similar to Part L? Yes, in principal but the difference is Passivhaus requires considerable care during design and construction around detailing to address the reasons for the performance gap. If a low energy building has been built, it has the best chance to stay low throughout its lifetime. The carbon benefits from efficiency are more reliable in the long term and require no maintenance, but once built, heat loss performance is difficult and costly to improve. Do it once, and do it well - having just undertaken a low energy retrofit of a 50's building for our office, we know the ultimate benefits from first-hand experience.

For a number of schools, housing and flats in the UK, planners have accepted Passivhaus in lieu of a renewable obligation as the carbon savings & additional benefits were far greater – we would like to see this practice extended across the UK.

One of the successes of Passivhaus is the certification process; it means that a client, funder or planner can simply state 'must be Passivhaus certified', and the building will undergo scrutiny from a certifier (who is an energy expert trained and accredited by the Passivhaus Institut, Germany) only receiving certification if it meets the energy and comfort criteria.

In short, the quality assurance process is more exacting than typical practice in the UK, resulting in greater confidence that the as designed performance will be achieved. This provides confidence that the carbon savings proposed during the planning application are more likely to be realised in operation. Current policy is so lacking in clarity of purpose, rendering it meaningless. Set against this context, the Passivhaus standard, a known and proven methodology offers a robust and measureable performance target. Of course we are biased but it is only due to our experience in trying to achieve the alternative. ■

[1] www.withouthotair.com

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Progress on the gap?

Ian Orme, Team Leader, Sustainable Construction Group at BSRIA examines the latest changes to Part L and asks if we are making progress on the 'performance gap' issue...

The latest changes to Part L of the Building Regulations have been implemented since the beginning of April. The Approved Documents have been available to the industry from the end of last year, and as you might expect, there has been a barrage of articles and a wealth of presentation 'bullet points' to explain the latest requirements and guidance to us all.

Some commentators have pointed out that the aspirational reduction in carbon dioxide emissions is rather smaller than previously envisaged, whilst others have focused on the missed opportunity to require consequential improvements to further improve the performance of the existing building stock. Both have consequences for the stated Government policy and targets for reducing our CO_2 emissions, but perhaps the real miss is the lack of movement on an effective approach to verifying the real performance of the completed building.

How we measure and talk about the performance gap has been the subject of some discussion in BSRIA. In the industry, many start by comparing the actual fuel use with the Part L compliance calculations. A significant variation is then apparent and the design deemed to be failing; but we know that the methods mandated in Part L are for compliance provision, which include a number of assumptions about the use of the building and the efficiency of the systems installed.

If the client wants to understand how the building is going to perform in use, then during design we need to be making assessments of this, and ensuring that they better reflect the expected use of the building.

As design and construction progresses, these would need to be updated to reflect all the changes that take place.

The small group of practitioners who are active in reviewing the performance of our buildings quickly identifies that 3 overarching themes occur regularly:

- Communication;
- Responsibility or ownership, and;
- Skills and knowledge.

The Zero Carbon Hub published their latest report on a review of evidence for the performance gap in housing at EcoBuild. The work included an extensive review of published reports and an 'end to end' review of the house building process from concept to completion. The results highlight that the 3 main issues cause problems at each stage of the delivery process.

This work echoes the findings of previous studies in both the domestic and non-domestic sectors. Studies funded under the Technology Strategy Board's Building Performance Evaluation programme have highlighted that when a client organisation understands their own requirements for the building, and when they can clearly communicate these needs to the project team and continue to engage with them during the design and construction of their building, positive outcomes can occur.

If we have a vested interest to improve the energy performance of our buildings then we need to set

targets for this, and ensure that someone on both the client and the project team side take responsibility for the delivery of the target. Having agreed a target, this needs to be communicated effectively so that all organisations joining the project understand how their actions can impact on the delivery of the target. Frameworks and processes to help industry with this exist already.

BSRIA has long championed the Soft Landings approach and the government is implementing its interpretation of Soft Landings from April. Simply, Soft Landings is a staged process to help establish targets for the performance of the completed building; reality checking the design as work progresses; preparing for handover, and then staying engaged with the building during its early occupation and for up to 3 years evaluating its performance. The evaluation stage provides the opportunity for fine tuning the performance of the building, demonstrating the business benefits associated with a performing building, and using this learning on other projects.

Part L is changing again and we know that we are on a trajectory to zero carbon buildings by 2016 for homes and 2019 for non-domestic buildings. However, we still have a significant number of challenges to overcome before we can have confidence in our ability to deliver a project that meets the targets. ■

[1] Closing the Gap between Design and As-built Performance, Evidence Review Report, Zero Carbon Hub, March 2014

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Fabric first for energy savings

Speaking to PBC Today, Saint-Gobain's Stacey Temprell, Sector Director for New Build, shares her thoughts on how to meet the target of zero carbon homes by 2016...

We are edging closer to the target for new homes to be zero carbon by 2016. With the 2013 revision of Part L of the Building Regulations, which announced a 6% improvement on new homes, the industry will have to work harder to reach its goal in the next 2 years. But, what approaches are enough to meet those goals?

"Overall, Saint-Gobain welcomes the changes to Part L of the building regulations, Temprell explains. "The 6% improvement for new homes and 9% improvement for non-domestic buildings on 2010 standards is a step in the right direction towards zero carbon buildings.

"Homebuilders will continue to have flexibility in how they meet the targets but the emphasis of the changes will be on getting the building fabric right, reinforced through the introduction of a new target for fabric energy efficiency, which is great to see. We believe that the fabric first approach to construction is key to reach our target."

Temprell believes that the fabric first approach is the most sustainable one to improve the energy performance of a building, as well as providing the public with security over energy costs.

She continues, "Building environmentally friendly homes relies on the fabric of the building being constructed to a sufficient standard in order to achieve optimum levels of energy efficiency. The approach revolves around building an airtight and thermally effective envelope, first and foremost, before adding renewable technologies into the building. The best type of building, after all, is one so efficient and comfortable for its occupants that it needs very little energy in the first place to maintain overall comfort, including good indoor air quality.

"This approach requires considerable planning in the early design phases of a new building. The right use of materials and application of building solutions and the right skills and knowledge to enable those con-

Stacey Temprell
Sector Director for New Build
Saint-Gobain

structing our buildings to do so in a way that leads to the building's performance being as good in practice, as its design had intended," she added.

With carbon reduction and the zero carbon homes target in mind, looking at the fabric from the outset can result in a more cost-effective project, reducing the need to add renewables. The new fabric efficiency assessment means that it's crucial that we take the one-time opportunity offered during the construction phase of new homes to build a better, more sustainable fabric.

"We believe that fabric first is the most sustainable approach to improve the energy performance of a building, as well as providing the public with security over energy costs."

By applying the fabric first approach properly, it is possible to diminish the need for additional energy to heat or cool the building, creating a comfortable living space, ultimately improving the health and wellbeing of the occupants, as well as cutting bills and saving energy and carbon.

"One means of construction that places a fabric first approach at its heart is championed by the Passivhaus Trust in the UK, an organisation of which Saint-Gobain UK & Ireland is a founder member," Temprell continues.

"The Passivhaus standard has been raising the bar for building industry standards for the past 20 years. By focusing on design principles that emphasise dramatically a reduced demand for heating and cooling, the standard also creates excellent indoor air quality and comfort levels.

"Passivhaus aims to reduce the need for additional air circulation, heating or cooling systems by creating buildings that are more airtight than conventional buildings. As well as increasing comfort levels for occupants, this leads to less energy being used and wasted, reduced carbon emissions and lower costs. By ensuring that the building fabric is as structurally sound and well insulated as possible, Passivhaus buildings are among the best performing structures for energy efficiency in the world.

"I believe – and much of the research undertaken at Saint-Gobain suggests – that by adopting a fabric first approach many of the issues we are having now and trying to solve by affixing retrospective measures to poorly built housing stock would be alleviated," Temprell concluded.

"Building with the fabric in mind would bring us closer to the 2016 zero carbon targets for homes in the UK, so it's worth the investment to meet the country's environmental demands and need for energy security. As the International Energy Agency recently stated, energy efficiency is the 'world's first fuel'." ■

SAINT-GOBAIN

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Radiating efficiency

John Colling, Chairman of the Manufacturers Association for Radiators and Convectors highlights the benefits of steel panel radiators – especially for the eco-conscious...

With the economy set to overtake the pre-recession 2008 peak this summer, the construction industry, and in particular the house building sector, have a new found confidence.

Construction output is expected to grow by 4.0% in 2014, 3.0% in 2015, and 2.8% in 2016.

With new houses being built and the approach of the home improvements season, let us look at the role of the humble household radiator in today's future city.

The outlook

Our future cities are of course shaped not only by legislation and government initiatives, but by consumer demand. The biggest challenge for the industry is responding to those needs in a cost effective way.

Continuous innovation is the key to meeting this challenge. This is why we have seen the introduction and growth of high efficiency, low temperature heating systems, and also improvements to existing products.

The response

The list of heat source options is growing fast, with renewable technologies such as heat pumps becoming more popular.

The key point of difference between alternative heat source choices and traditional gas boilers is that the system temperature is often set at much lower temperatures. This can have significant impact on the suitability and performance of a heating system if the right supporting products are not used.

Radiators in our modern cities

Historically there has been a misconception that radiators are less energy efficient than some other heat emitters when used with low water temperature systems.

In fact, modern high performance steel panel radiators work well with low water temperatures, making them an ideal choice for eco-conscious developers and home owners.

This has been driven by the introduction of modern insulation materials and standards, bringing significant reduction in heat losses and therefore, it may no longer be necessary to heat water to 80°C in order to achieve a room temperature of 20°C.

Modern panel radiators need only small volumes of warm water to operate efficiently, and so work well with all heat sources. They start performing as soon as the water in the system, and therefore the panel, becomes warmer than the surrounding space. Low water temperature heating systems using modern panel radiators are one of the most efficient ways of using heating energy to deliver warmth.

Innovation in panel radiators means modern units use less steel, have lower water content, utilise convector fins and incorporate individual thermostatic valves – providing efficiency, comfort and versatility.

Development also denotes that radiators no longer need to take up large areas of wall space; however size is a factor when considering low temperature systems.

Radiators for low temperature systems are physically and technically the same as traditional panel radiators,

but, the same size of radiator will not produce the same heat output with a low temperature system as it will with a high temperature system. To achieve this you will generally need to fit radiators that have larger surface areas.

Innovative developments in radiator design pack more surface area in a smaller wall space than ever before.

The modern day radiator can also work effectively alongside underfloor heating, and it is possible to use the same heating water for both. The latest SAP 2012 document has specific criteria for energy efficient low temperature heat generators and states that "radiators are as efficient as other heat emission systems", such as underfloor heating.

Radiators today are not only compatible with current building methods and skills sets, they are flexible and reactive - responding to the real time temperature needs and reacting to secondary gains e.g. people.

Due to their flexibility, steel panel radiators and convectors are the best way of introducing energy-efficient heat generators into existing properties, with renovation and retro-fit accounting for in excess of 90% of the UK and other major western European markets.

Not forgetting that radiators have undergone something of a renaissance in the last decade or so – in line with people's aspirations to create beautiful and unique homes that match their taste and lifestyle, the radiator has not been forgotten. Indeed, options in material, colour and design have meant it has become something of a work of art in itself.

In closing

Warmth is both a necessity and a pleasure. Whilst the sound of lapping waves may need to be improvised, warming yourself by the radiator is a similarly pleasurable experience to soaking up the summer sun.

In reality, nobody has found anything better than the radiator. While other types of heating system have emerged as popular options, the steel panel radiator can, and does, compete on all levels and is still very much the number one choice. ■

John Colling
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Manufacturers Association for Radiators and Convectors (MARC)
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All change ahead

Dr Paul Davidson, Director of Sustainable Energy at BRE provides a detailed overview of the changes to Part L 2013...

The new Part L changes take place in the context of a number of national and European policies – some of which are potentially at odds with each other. The most fundamental is that government confirmed – in its 2013 Budget statement and more recently, its continued commitment to the target of Zero Carbon new homes by 2016. In addition, the recast Energy Performance of Buildings Directive requires EU member states to work towards 'nearly zero energy buildings' by 2019 – an aspiration already endorsed in UK Building Regulations.

These considerations have led to the concept of the Zero-Carbon Triangle in which basic energy efficient design underpins low-and-zero-carbon service systems which together deliver a carbon compliance standard. If this falls short of the zero carbon target, then a number of alternative 'allowable solutions' are open to the designer. The Department for Communities and Local Government (DCLG) has recently consulted on what these allowable solutions might comprise.

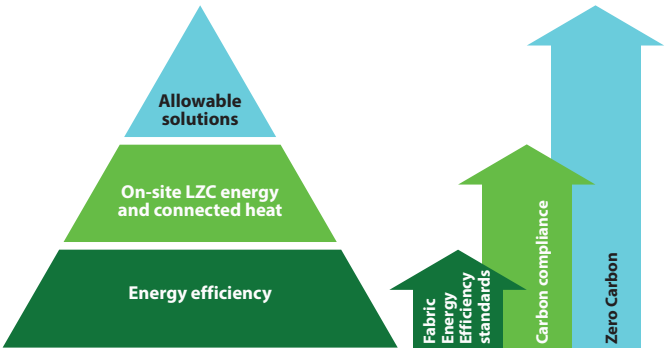

Image courtesy of DCLG

The Zero Carbon triangle

Operating in the other direction is the so-called 'Growth' commitment of 2010, which essentially aims to minimise the burden on industry of regulation of all sorts, and particularly those impacting small businesses. The Red Tape Challenge also seeks to keep regulation to a minimum.

Part L 2013 is seen as an important and technically meaningful step forward, which strikes a balance between the zero-carbon agenda and the growth commitment. As with other Part L steps, it aims to further reduce energy costs for consumers and businesses, and makes an important contribution to delivering the carbon budgets set out in the Climate Change Act.

The consultation on Next Steps to Zero Carbon, along with a parallel one on the Housing Standards Review, looks forward to 2016 and the role of Building Regulations in delivering the zero-carbon objective.

New homes

There are 2 significant innovations in the requirements for new dwellings under Part L 2013, as set out in the new Approved Document L1A.

The first is a new regulation (26A) that requires new dwellings to achieve, or better, a fabric energy efficiency target in addition to the carbon dioxide target.

The second is the introduction of a 'concurrent' notional building specification, which sets the target for carbon dioxide emissions without the use of an improvement factor and is also used to set the target for the fabric energy efficiency.

The CO_2 target has been strengthened to deliver an aggregate 6% reduction in emissions across the new-build housing mix, compared with Part L 2010.

Between them, these 2 requirements tackle the lower 2 segments of the Zero-Carbon Triangle, with further work needed to decide on the approach for 2016.

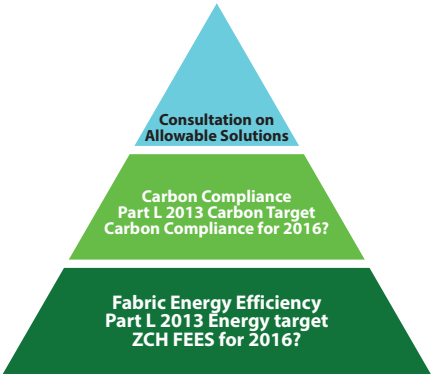

Image courtesy of DCLG

The 2013 Part L step

The notional dwelling used to determine the carbon dioxide and fabric energy efficiency targets is the same size and shape as the actual dwelling, but is defined to be constructed to a concurrent specification. A summary of this specification is published in Table 4 in the Approved Document with the full detail in SAP 2012 Appendix R (www.bre.co.uk/sap2012). For example, wall U-values are set at 0.18W/m^{2}degC and roofs at 0.13. If the actual dwelling is constructed precisely to the notional dwelling specifications, it will meet the carbon dioxide and fabric energy efficiency targets. However, this specification is not intended to be prescriptive and may very well not represent the most cost effective solution in any particular case. Developers are free to vary the specification, provided the same overall level of carbon emissions and fabric energy efficiency performance is achieved or bettered. DCLG is encouraging the industry to compile a series of model designs to help in this process.

Fabric Energy Efficiency (FEE) is defined as the amount of energy needed for heating and cooling the dwelling during the year, expressed as kWh/m^2/yr. By setting a minimum performance standard for this parameter, Part L is ensuring that the fundamental structure of the dwelling meets basic energy efficiency requirements, and that a low-carbon energy source cannot be used to 'rescue' a poor fabric design. This recognises that the fabric of a building – the walls, floor, roof and glazing – is likely to remain in place untouched for long periods of its life and is often most costly to upgrade. By contrast, the HVAC plant has a finite life and will be replaced several times during the life of the building.

The Zero Carbon Hub has proposed standard target values for the FEE – known as FEES – for 2016. However, in the light of consultation responses, DCLG has decided not to set the bar this high for 2013 and the FEE value resulting from modelling the notional dwelling is therefore relaxed (increased) by 15% to set the 2013 Target (TFEE).

Two other components of the calculation procedure are worthy of a mention. Fuel factors were originally introduced as a way of relaxing the CO_2 target for dwellings without mains gas – either because they are built off the gas grid or to cover, for example, all-electric apartments. After consulting on the issue, DCLG has decided to retain the factors, amended for use from 2013. On a related issue, the CO_2 emission factors have been updated to reflect changes in the energy supply systems, most noticeably for electricity.

In addition to the 2 mandatory elements of the compliance test for new homes (which together comprise Criteria 1), there remain 4 other compliance tests (formally 'statutory guidance'). The first of these is the setting of elemental backstops (Criteria 2). The need for fabric backstops (maximum allowable U-values) has to some extent been over-taken by the FEE requirement – so these values remain unchanged from 2010. Standards for building services are once again contained in the Domestic Building Services Compliance Guide.

Criteria 3 has been changed slightly to limiting the effects of heat gains in summer, where the emphasis has widened from just considering the solar gains. This, for example, encourages the proper insulation of domestic hot water pipes.

Criteria 4 has also been revised from 2010, though still deals with the quality of construction and commissioning. It recognises the vital importance of doing everything possible to ensure the design intent is translated fully into practice and that the resulting performance in use is consistent with the calculated Building Emission Rate and Fabric Energy Efficiency rate. DCLG has commissioned the Zero Carbon Hub to investigate the gap between design and as-built performance; the results of that study are expected to inform future revisions to Part L.

One change from 2010 is the removal of the reference to separate quality assured accredited construction details for thermal bridging. Designers are encouraged to use DCLG Approved Construction Details for the junctions between fabric elements and at the edges of openings. The thermal effects of these details are best assessed in the SAP calculation using the actual dimensions of the junctions together with approved values for the linear thermal transmittance. Alternatively, designers can use a very conservative 'y' value for the overall transmittance, but will then need to improve the thermal performance elsewhere to meet the BER and FEE targets.

The provision of information to householders remains an important route to ensuring that dwellings perform to their design potential. The Approved Document provides additional guidance on how builders can best comply with this Criteria 5.

New buildings other than dwellings

For non-domestic buildings, the aim is again to take a sensible, cost effective step towards zero carbon buildings. This has been achieved by tightening the specification for the Notional Building, the result of which is to deliver a 9% reduction in carbon emissions compared with 2010, when aggregated across the expected mix of building types (see following table).

An extra category of Notional Building has been introduced, so there are now 3, based, as in 2010, on the source of daylight:

Building type	% improvement
Distribution Warehouse	4%
Deep Plan Office with AC	12%
Retail Warehouse	8%
Shallow Plan Office	13%
Hotel	12%
School	9%
Small Warehouse	3%
Aggregate across Build Mix	9%

Table 1. Percentage improvement for 2013 by building type

- Side-lit (or unlit) where the HVAC system provides heating only;
- Side-lit (or unlit) where the HVAC includes cooling;
- Top-lit.

In addition, the air-permeability for the notional building varies according to the gross internal floor area, in response to concerns expressed during the consultation exercise.

The target (TER) set in this way is achievable in most building types by focussing on the quality of the fabric and building services, without the necessity for renewable energy sources. However, the notional building prescriptions are not intended to be prescriptive, but to allow significant flexibility in design options.

Unlike with dwellings, the wide variability of building types does not lend itself to the introduction of a mandatory energy target. Instead, the elemental backstops are used to ensure a minimum level of energy efficiency in each building. These have been left unchanged from 2010. Minimum standards for

building services are set out in the Non-Domestic Building Services Compliance Guide, which has been updated to take account of, for example, standards set under the Eco-Design and Energy Labelling Directives. An addition since 2010 is the option to demonstrate that the lighting system complies with Criteria 2 by using the LENI calculation method.

One new feature since 2010 is the requirement by the recast Energy Performance of Buildings Directive for designers to give proper consideration to the use of 'high-efficiency alternative systems' – such as renewables, district heating, heat pumps or CHP. For Part L, this will be covered by a facility in the compliance tools to record the fact that this has been done and note where evidence of such an assessment and analysis can be found.

Following discussion with the industry, where a modular or portable building is to be used with a service life of more than 2 years, but with at least 70% of its external envelope composed of modules built before these regulations came into force, the TER can be increased by a factor related to age.

Existing buildings

As the government announced in December 2012, it has decided that there will be no changes to the requirements for 'consequential improvements' to existing buildings and no uplift to the standards for extensions or windows. As a result, the 2 Approved documents relating to existing buildings – ADL1B and ADL2B – have undergone only very minor changes relating to clarification and additional guidance. In the case of non-domestic buildings, updates to the Compliance Guide may impact on the specification of replacement service items.

Compliance tools

Compliance with the 2013 Part L requirements for dwellings will be demonstrated using new commercial software tools based on the 2012 version of SAP – the Standard Assessment Procedure (available at www.bre.co.uk/sap2012). Pending the production of these tools, The Department for Energy and Climate Change (DECC) asked BRE to produce a temporary, updated version of cSAP (used alongside the Part L consultation) to allow industry to experiment with house designs and building products.

For non-dwellings, a new version of SBEM will be one of the compliance routes. DCLG asked BRE to produce an interim version of this tool too.

Both tools have been available since December for free download at www.2013ncm.bre.co.uk. Neither tool will be capable of producing an official compliance report or EPC certificate, but have proved very useful to the construction and product supply industries.

The 'official' release of the 2013 version of SBEM – v5.2.b – was made available at www.ncm.bre.co.uk from 3 April 2014.

All documentation outlining the core guidance are available on DCLG's Planning Portal: http://www.planningportal.gov.uk/buildingregulations/approveddocuments/partl/changes. ■

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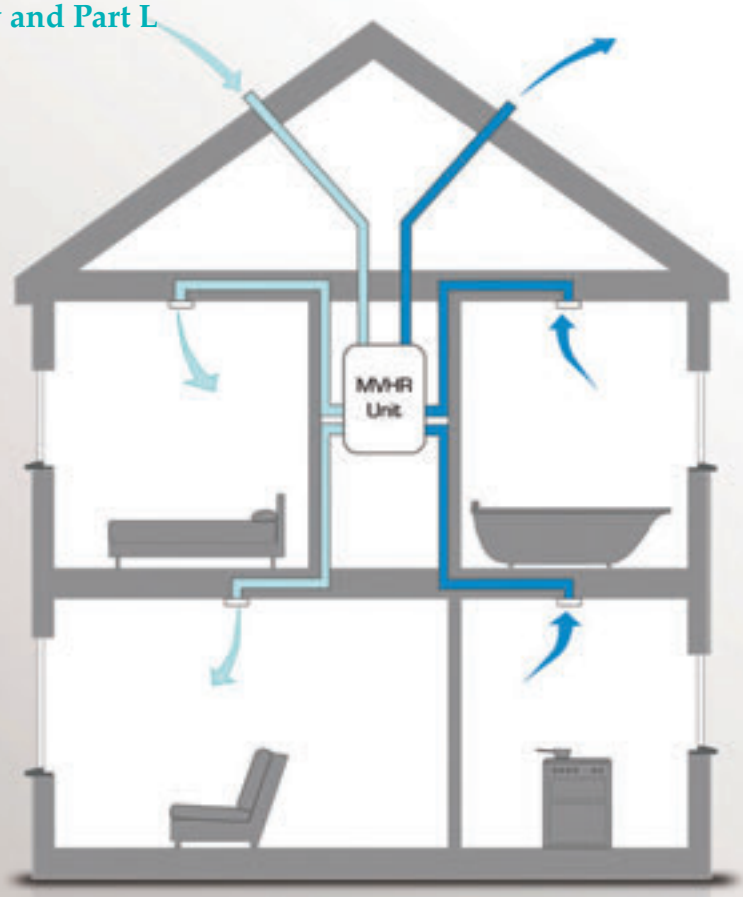

MVHR: new Standard and guidance

Paul Cribbens, Standards Manager at NHBC outlines the development of new standards and guidance for MVHR systems following research that suggests installations and design are underperforming...

The move towards higher levels of energy efficiency in new homes and improved airtightness has led to around a quarter of new homes built being fitted with Mechanical Ventilation with Heat Recovery (MVHR) systems, according to NHBC analysis.

The changes to Building Regulations have introduced a practical and regulatory need to ensure that the indoor air quality and ventilation provision in new homes are appropriate, as well as designing the home in such a way that reduces the amount of energy used for space heating. MVHR systems work by providing fresh air ventilation, while at the same time recovering heat from exhaust air that would have otherwise been lost.

With most people in developed countries spending an estimated 80% of the time indoors, good indoor air quality is vital for the comfort, health and wellbeing of occupants. Poor indoor air quality can be connected to a wide range of serious health effects, including allergic and asthma symptoms, lung cancer, chronic obstructive pulmonary disease and cardiovascular disease.

An increasing number of house-builders are using MVHR as a practical and cost effective way of meeting ventilation and energy efficiency requirements. It appears likely that the trend to install MVHR will continue, and could well become the dominant form of ventilation for new homes.

Designed and installed correctly, MVHR can offer a number of benefits. But there is a growing body of evidence, based on academic study and practical observations that indicate MVHR systems are all too often designed, installed or commissioned in such a way that the design performance is greatly reduced.

Research from the NHBC Foundation in 2009 Indoor air quality in highly energy efficient new homes – a review, followed by the publication this year of the Zero Carbon hub-led VIAQ Task Group report Mechanical Ventilation with Heat Recovery in new homes, both revealed a number of issues with MVHR systems.

However, with only limited evidence available that is based on monitoring the use of MVHR in practice, the NHBC Foundation has this month released primary research that studies 10 homes in Slough, built to level 6 of the Code for Sustainable Homes. As well as examining the design, commissioning, and installation of the systems, over the course of the 18 month monitoring, the occupants were also interviewed on 3 occasions to provide in-use feedback.

The earlier VIAQ Task Group final report did identify that when done correctly, MVHR systems can deliver good performance, but it is clear from this new research - 'Assessment of MVHR systems and air quality in new homes'- that a number of lessons still need to be learned. Nine of the units had to be re-commissioned, and the remaining 1 completely replaced after approximately 1 year of occupation.

As a result of this body of research, and at the request of NHBC's Standards Committee, it was agreed that new NHBC Standards for MVHR needed to be developed. Following the proven method of engaging with stakeholders, a group of experts from the ventilation and house-building industries was assembled, including representatives from several manufacturers of MVHR systems, a range of house builders, academic and, industry bodies. This group assessed the use of MVHR in house building, identifying common problems and produced a set of technical standards to address them.

The outcome from this group is the new Chapter 3.2 Mechanical ventilation with heat recovery, which will be included in the 2014 edition of the NHBC Standards. It documents new technical guidance that will not only set the standard for MVHR, but significantly raise it, to the benefit of homeowners and the industry in general.

The NHBC Foundation research main findings in connection with the MVHR systems monitored in Slough are:

- It is critical that the overall ventilation strategy is taken into consideration during the design stage when intending to use MVHR systems in home;
- During the procurement process it is important to seek technical input from the supplier and installer of MVHR systems;
- MVHR systems should be installed by trained and experienced ventilation system installers;
- Commissioning of MVHR systems must be carried out with care and attention;
- Factors likely to adversely affect the power consumption and thermal performance by MVHR fan units during operation must be considered, such as the size and location of the fan unit, the level of insulation provided and the commissioning.

Key technical issues covered by the new chapter include:

System design
Satisfactory performance is dependent on the design taking into account issues such as the location of the fan unit, the type and position of air valves and terminals, and the control of condensation, as even relatively minor variations from the design can result in underperformance.

Ductwork
The type of duct and its airflow resistance needs to be integral to the design. The main types of duct used in domestic ventilation systems are; rigid duct, semi-rigid duct with short, straight lengths of flexible duct acceptable only for final connections. Compatibility between the duct and other components such as bends, connectors and fixing brackets is essential. To achieve the correct ventilation rate, airflow has to be balanced against the resistance of the ductwork system and its constituent components.

Location of fan unit
MVHR systems require regular interaction from the occupants, which will involve ensuring that the system is maintained, such as regular cleaning/replacement of the filters, around twice a year. Filters are usually incorporated into the fan unit, which can be fairly large and difficult to locate. Because of the need to optimise space within the home, the fan unit is often located outside of the insulated envelope, typically in the roof void. While this may represent a good use of space, it does mean that additional measures need to be taken to ensure that the system performs as intended. Suitable access for maintenance should also be provided.

Prevention of condensation
Ductwork may be carrying air that is at a different temperature to the surrounding atmosphere and this can create favourable conditions for condensation to form either on, or in the ductwork. The new Chapter

contains guidance for insulating ductwork that takes into account different types and functions of ducts, their location, and where condensation might occur.

It is critical that when considering MVHR as a ventilation system for new homes, that these new benchmark standards are complied with. A well considered strategy during the design stage – before procurement and commissioning – is essential, as is ensuring that the design is followed through to the installation. ■

For more information on the NHBC Foundation research, please visit www.nhbcfoundation.org/MVHRsystems, and for more information on NHBC Standards please visit www.nhbc.co.uk/Builders/ProductsandServices/TechnicalStandards

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The next step to zero carbon

Paul Wilkins, Chairman of the Association of Consultant Approved Inspectors outlines how Part L 2013 has provided some business certainty for developers and architects...

The Association of Consultant Approved Inspectors (ACAI) welcome the recent initiative of the Department for Communities and Local Government (DCLG) who have now developed a more comprehensive strategy to deliver the zero carbon buildings of our future. The consultations on changes to the Regulations, and the introduction of Allowable Solutions has developed a roadmap to meet the deadlines set between 2016 and 2020. This brings a welcome business certainty (if government policy is unchanging) to developers and architects. We can now plan how we push developments to meet these targets knowing when, and more importantly, being guided as to how this is being delivered.

It is clear the DCLG appreciated the impact of the recession and resultant house-building crisis by setting the 2013 Part L as reasonably achievable improvements. The uplift from the 2010 standards are in the order of improvements of 6% on housing and 9% on non-domestic. This is also averaged over different building types (including housing) to appreciate the different energy profiles. This means that there is a sympathetic approach to targets ranging down to 3% in difficult buildings.

Some key points are:

Fabric and services: The 2010 standards of efficiency is close to the optimum. The 2013 changes to U values and efficiency of services in the Approved Documents and notional buildings push standards to the best level without, if possible, resorting to renewables. This means that in theory, standards for services and fabric will not change radically all the way to 2020 as we are reaching limits of efficiency with these components.

Generation: Renewables will, however, need to be specified more often to meet the 2013 standards due to difficult sites, options available and design/cost choices. Certainly for the next push in 2016 to meet higher standards, it will mean that we will have to now consider generation as a standard concept in design (not as a bolt on fix for a shortfall). We trust as happened with PV – over the next few years the market and industry will respond to demand, and renewables will develop by being both more efficient, and cheaper.

"It is clear the DCLG appreciated the impact of the recession and resultant house-building crisis by setting the 2013 Part L as reasonably achievable improvements."

Allowable solutions: The appreciation of a route to meet the toughest zero carbon goal. This "end game" is a route to meeting the toughest targets – even on difficult sites. This will allow offsite options and financial redress if you cannot make a building perform at a figure of zero (BER) on the SAP/SBEM. The option of payment is a careful and balanced thought provoking process to encourage on site solutions but allow alternatives.

Clearly the changes have developed a 2 sided approach to the targets. Firstly (and the title of Part L) Conservation of fuel and power which has a value in energy terms. The reduction of carbon emissions is an independent value within the new SAP and SBEM tool. The software packages now evaluate both these values and report pass/fail values on energy and carbon efficiencies. This also prevents "greenwashing" which was a potential as we push the limits of our building performance. Loading up a poorly designed and inefficient building with PV is not an option. The strategy is to push the design and specification of services to the best values – for instance designing out solar gains (not simply adding cooling).

One area of specialist advice that will no doubt develop further is the interpretation of SBEM and SAP assessments. The complex and hidden data and information which is driven to a single figure answer will need to be analysed, and be subject to expert advice and guidance. Building control staff are trained and used to dealing with hundreds of these documents and build up an expertise and analytical ability to offer proactive guidance. A few examples are:

- Increasing a canopy by 600mm to prevent solar gain following a SBEM failure due to the cooling load. A simple fix with no maintenance and long term benefits;
- Advising on over specification of lighting and identifying that this was an unreasonably high proportion of the building energy profile;
- Choosing which element of energy profile would be most beneficial by considering the supporting data on annual energy use. ■

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Making fabric perform

Tom De Saulles of The Concrete Centre highlights the pragmatic key changes to Part L1A, and the required performance that can be achieved with concrete and masonry solutions...

Two years ago the government was considering a further 19% cut in the Part L1A emissions target which, if introduced, would have relied on the use of low carbon heat/power systems such as photo-voltaics. The Department for Communities and Local Government (DCLG) has listened to the consultations and reason, and the target has been set at a more modest 6%, reflecting economic concerns and a need to encourage, not hinder, house-building.

In practical terms, the new emissions target can be met without the need for costly technologies, but does require a high standard of fabric performance to be achieved. However, the level of performance needed, is readily achievable with current materials and methods of construction, albeit with a greater emphasis on reducing thermal bridging.

New energy target

Alongside the revised Target Emissions Rate (TER), a new requirement has been introduced called the Target Fabric Energy Efficiency (TFEE), which sets a minimum standard for fabric performance measured in kWh/m^2/y. This underpins the government's 'fabric first' approach to reducing emissions by ensuring new homes cannot rely too heavily on low carbon heat/power systems to achieve compliance.

Revised method for setting targets

The way the Standard Assessment Procedure (SAP) sets targets has changed slightly, with the TER and TFEE both based upon the performance of a newly defined notional dwelling, which has a fixed specification for U-values, psi-values and heating etc., referred to as the Elemental Recipe. In setting the energy target, the calculated performance of the notional dwelling is increased by 15% to produce the TFEE. This is to be welcomed as it provides some additional design flexibility for the fabric performance. The full specification for the notional dwelling is set out in table 4 of the Approved Document L1A 2013.

Providing the TER and TFEE targets are satisfied and the existing fabric backstops are not exceeded, house builders are free to create their own fabric and services specification in the usual way. For those unsure of where to start, there is the option of simply adopting wholesale the Elemental Recipe, offering a straightforward way to ensure compliance from the outset. Whether it is implemented as it stands or is tweaked slightly to provide a more cost effective and practical specification, the new Elemental Recipe provides a good starting point for house builders that is simple to work with and not overly prescriptive.

Implications for cavity walls

In terms of cavity wall thickness, the U-value of 0.18 W/m^{2}K used in the Elemental Recipe can be achieved in cavities of around 150mm using aggregate blocks with full-fill mineral wool insulation or partial fill phenolic insulation (with a 50mm air gap). Alternatively, a more relaxed U-value of 0.2–0.22 W/m^{2}K could be adopted, allowing a reduced cavity width. This can in turn be offset by improvements to other aspects of the fabric specification such as the roof insulation or windows. More relaxed U-values can also be offset by the addition of a low carbon heat/power system such as photo-voltaics or flue gas heat recovery systems. Although this approach adds cost, it does allow advantage to be taken of the 15% performance margin included in the TFEE, whilst ensuring compliance with CO_2 emissions limit set by the TER. A more

Element	Value
External walls	0.18 W/m²K
Party walls	0.0 W/m²K
Floor	0.13 W/m²K
Roof	0.13 W/m²K
Windows	1.4 W/m²K
Air tightness	5.0 m³/(h.m²)
Thermal Mass Parameter (TMP)	Medium (TMP=250)
Linear thermal transmittance	Standardised psi values – see SAP Appendix R, unless the actual dwelling uses the default y-value of 0.15 W/m²K, in which case the y-value for the notional dwelling is 0.05 W/m²K
Ventilation type	Natural (with extract fans)

The main fabric-related values used in the specification for the notional dwelling (Elemental Recipe)

detailed explanation of these options plus a range of worked examples can be found in the new guide from The Concrete Centre Thermal Performance: Part L1A 2013, which has been produced with input from across the sector, including the HBF, MMA, NHBC and numerous manufacturers.

Thermal bridging

This has become a particularly critical aspect of dwelling design, making the use of high performance construction details a sensible policy for house builders to adopt, particularly as they provide a low cost means of helping meet the energy and emissions targets. The masonry sector has developed thermally efficient construction details, the latest have been produced by the CBA. It is worth noting that if construction details such as these are not used, then the highly punitive default Y value for a dwelling's overall thermal bridging must be applied instead. This can result in up to half of the calculated heat loss for the dwelling coming from thermal bridging alone. To help discourage this approach, the only Y value revised SAP software will accept in the future is the default value (0.15 W/m²K), which should encourage individual thermal bridges to be specified, leading to a much more favourable outcome.

Thermal mass

There has been no change to the treatment of thermal mass since the last edition of Part L, although there was a revision to SAP in the intervening period that acknowledges the enhanced summertime performance of heavyweight dwellings where night time ventilation is possible.

Speculation on future revisions to Part L1A

Towards the end of 2013 the government reaffirmed its commitment to the challenging deadline of new homes being zero carbon by 2016. However, this is now looking increasingly unlikely due to the lack of time to address the legislative issues involved. In reality the deadline may slip back to 2019, which aligns with the non-domestic zero carbon targets and still meets the requirements of the European Energy Performance of Buildings Directive (EPBD). In practical terms, there are limits to what can be achieved on-site to meet this target, so the plan is for emissions from new homes to be offset through a combination of fabric energy efficiency, on-site low-carbon heat/power systems, and a range of additional, mostly off-site systems known as Allowable Solutions that will bridge the shortfall. The Allowable Solutions scheme could support a range of carbon saving industries and programs, such as the upgrading of insulation in existing buildings and offshore wind power. These would be invested in by the scheme, with funding coming from a levy on housing developers.

In terms of a future uplift to the fabric performance required by Part L1A, it seems unlikely that this will go much further, as the new requirements are already approaching practical limits. However, it is not inconceivable that the helpful 15% margin added to the fabric energy efficiency target in Part L1A 2013 could be reduced or removed altogether, which would reduce the flexibility currently provided to the house builder. ■

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Introducing Part L 2013

Part L 2013 came into force on 6th April, and Hywel Davies, Technical Director of the Chartered Institution of Building Services considers the 2013 changes...

Over the past 8 months the government has published revised Building Regulations, new editions of the Part L Approved Documents for new buildings (ADL1A and 2A) and the non-domestic and domestic Compliance Guides, together with amendments to the Part L Approved Documents for works to existing buildings (ADL1B and 2B). As we prepared for when these came into force on 6th April, the picture is now pretty much complete.

We now know the major changes to the requirements for 2013. Homes must achieve a 6% improvement in carbon emissions relative to 2010, and a new regulation requires a calculation of the fabric energy efficiency both at the design stage and on completion. This calculation must be submitted to building control at each point. Non domestic buildings will, on aggregate, need to achieve a 9% improvement, but the exact figures vary by building type. For offices and hotels the improvement required is 12 or 13%, whilst for warehouses it is between 3% and 8% depending on the layout and size of the warehouse. Table 5 of Approved Document L2A (1) contains a summary of the key characteristics of the notional building.

To support these changes in the non-domestic target, there is a wider range of notional non-domestic buildings, including smaller warehouses, top lit and side lit buildings. The Department of Communities and Local Government (DCLG) and its advisers consider that these requirements are achievable with good fabric and building services design, and construction or installation in most building types. They do not see the installation of renewable energy generating equipment as being necessary to achieve the new targets in most cases.

There are also changes to the detailed standards for building services, contained within the non domestic compliance guide, specifically relating to chillers, fan coil units and lighting. The minimum cooling efficiency of chillers is increased from 2.5 to 2.7, and the specific fan power of fan coil units is reduced from 0.6 to 0.5 W/l/s. It is also worth noting that in calculating the costs of these changes, a service life of 15 years is assumed for the fan coils and chillers, and 20 years for lighting. Other aspects of the building are assumed to have a service life of 60 years, for the purposes of calculating costs for the impact assessment.

"Homes must achieve a 6% improvement in carbon emissions relative to 2010, and a new regulation requires a calculation of the fabric energy efficiency both at the design stage and on completion."

The 2013 edition sees the introduction of the Lighting Energy Numerical Indicator, or 'LENI', as an alternative compliance route for lighting design. Lighting professionals, led by the Society of Light and Lighting, have been seeking this change for some time, as it helps to align lighting design practice with other aspects of European Standards for lighting. It also gives competent lighting designers additional flexibility and design freedom. However, for smaller lighting installations, that are often installer designed or specified, the existing simple requirements have been strengthened with an increase in initial luminaire efficacy to 60 lamp lumens per circuit watt.

The 2013 edition of the regulations also includes consolidated requirements introduced in 2012 to

Hywel Davies, Technical Director
Chartered Institution of Building Services

implement some aspects of the Energy Performance of Buildings Directive (EPBD), which requires "the feasibility of high-efficiency alternative systems to be taken into account before construction commences". It is not entirely clear what this will mean in practice. Whether it will require a specific report to be submitted to building control, or just an affirmation that "something has been done", or indeed whether there will be any meaningful enforcement at all, remains to be seen.

A further welcome change is to the layout of the Approved Documents, which are now in a single column format and so far easier to read on screen on a desktop, laptop or even a tablet. And finally, Part L 2013 only applies to England, and not to Wales, who are producing their own regulations and guidance for the first time since Building Regulations were devolved to the Welsh Assembly.

The new guidance came into effect on 6th April 2014, and any work started before then is covered by the 2010 edition of the guidance. Any work which is subject to a building notice, full plans application or an initial notice submitted before 6th April 2014 will also be covered by the 2010 guidance provided it is started before 6th April 2015. ■

http://www.planningportal.gov.uk/uploads/br/BR_PDF_AD_L2A_2013.pdf

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Part L'ing of the ways

NHBC outline the differences in the Welsh and English revisions to Part L and how this will affect builders who develop across both sides of the border...

The Welsh government have recently provided details of their revisions to Part L (Conservation of Fuel and Power) 2014 for Wales and the different approaches that they will be making towards Zero Carbon homes.

The steps outlined are similar in many ways to those in England, but there are some significant differences which will affect builders who develop across both sides of the border.

New Homes

For those that build new homes, the Welsh Part L uses a recipe approach identical to that in England. This will benefit those who build similar house types in England and Wales.

	Part L 2014 – Wales	Part L 2013 – England
Opening area	Same as actual up to 25% of floor area	Same as actual up to 25% of floor area
Ext. Walls (W/m²K)	0.18	0.18
Party Walls (W/m²k)	0	0
Floor (W/m²k)	0.13	0.13
Roof (W/m²k)	0.13	0.13
Windows (W/m²k)	1.4 (g=0.63)	1.4 (g=0.63)
Air tightness (m³/hr.m²)	5.0	5.0
Thermal bridging (W/m²K)	Calculated using the lengths of junctions in the actual dwelling and the psi values provided in Appendix R	Calculated using the lengths of junctions in the actual dwelling and the psi values provided in Appendix R
Ventilation type	Natural (with extract fans)	Natural (with extract fans)
Gas Boiler	89.5% (SEDBUK)	89.5% (SEDBUK)

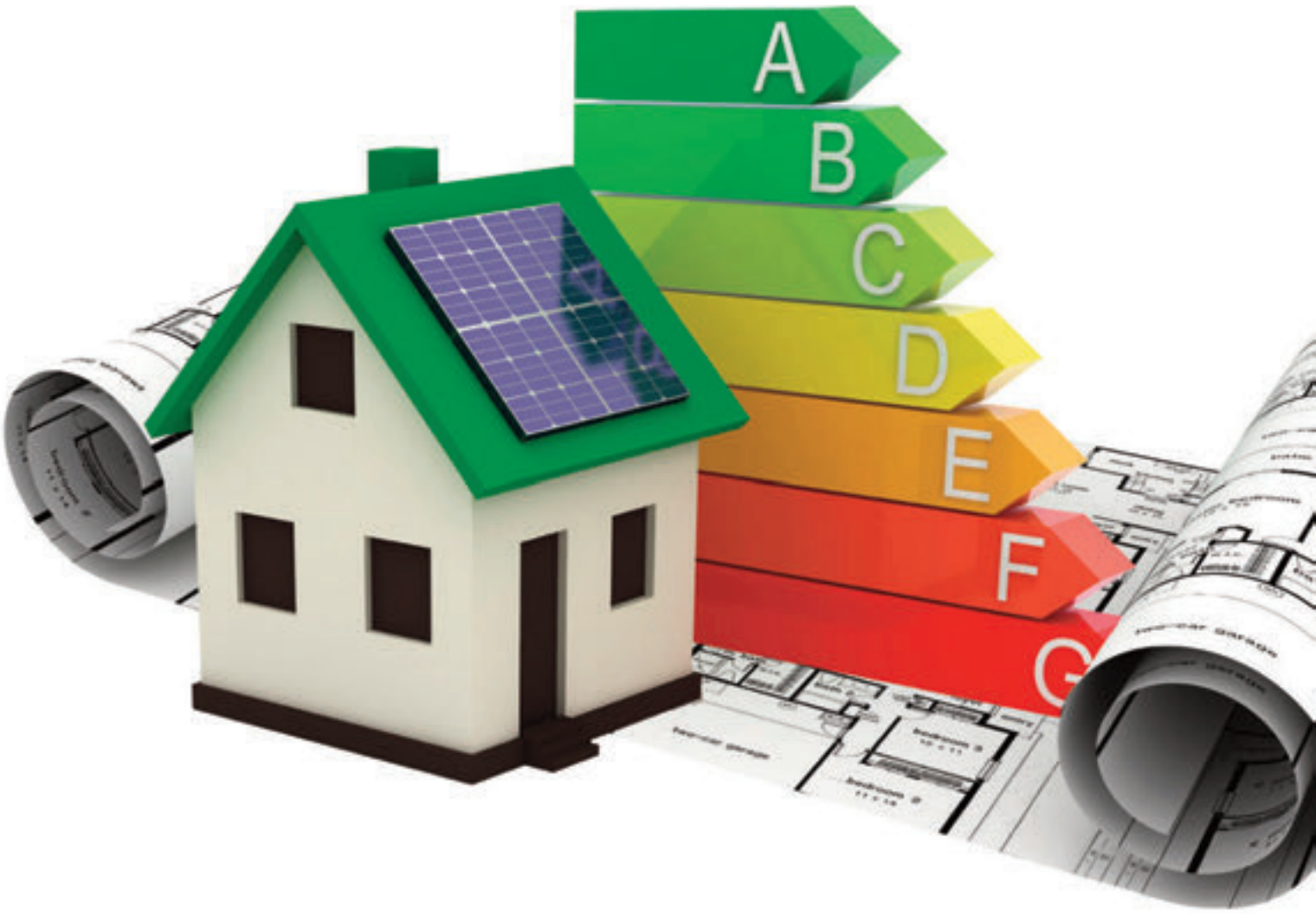
The significant difference between the 2 sets of regulations is that the Welsh government are not including a Fabric Energy Efficiency Standard as has been the case in England. To ensure that the fabric of the new home still performs adequately, the elemental backstops have been significantly tightened and are now mandatory, so limiting the potential to relax the performance of those elements when altering the 'recipe'.

	2010 Value	2014 Mandatory Value
Roof (W/m²K)	0.20	0.15
Wall (W/m²K)	0.30	0.21
Floor (W/m²K)	0.25	0.18
Party Wall (W/m²K)	0.20	0.2
Windows/Doors (W/m²K)	2.00	1.6
Air Tightness (m³/hr.m²)	10	10

Existing Homes

Perhaps the most significant changes to Part L 2014 in Wales are the requirements for consequential improvements to existing homes which will affect FMB members who operate in the domestic home improvement sector.

Alongside strengthening how much existing thermal elements require upgrading when replacing or removing them, there will now be a need to upgrade an existing house if works are carried out to extend the habitable space either by extending, adding a loft conversion, or converting the garage. In brief, the measures that can be done are:



- If the dwelling has uninsulated or partially insulated cavity walls, fill with insulation where suitable (may not be suitable for sites exposed to driving rain); and
- If there is no loft insulation or <200 mm thick, provide 250mm insulation or increase it to 250mm; and

Upgrade any hot water cylinder insulation as follows:

- if the hot water cylinder is uninsulated, provide a 160mm insulated jacket; or
- if the hot water cylinder has insulated jacket <100 mm thick, add a further insulated jacket to achieve a total thickness of 160mm; or
- if the hot water cylinder has factory-fitted solid foam insulation <25mm thick, add an 80mm insulated jacket.

For small extension less than 10m^2 in floor area, the consequential improvement is limited to upgrading the loft insulation only if required.

Part L 2014 for Wales comes into force on 31 July 2014 and the transitional provisions will be the same as those for 2010. ■

For more information on Part L 2014 for Wales and the full details of the transitional provisions visit NHBC Techzone at www.nhbc.co.uk/techzone

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A devolution of Building Regulations

Andy Thomas, Building Regulations Manager covering Wales, examines the changes to Part L and the differences between the English and Welsh versions...

With the transfer of powers in 2012, the Welsh government now has full responsibility for Building Regulations. They have been working on the changes to regulations and guidance, and designers and developers should be aware that none of the raft of 2013 changes to the Regulations and Approved Documents in England applies in Wales. Over the last 2 years there has been an evolution of separate law and guidance resulting in all of the Approved Documents being unique to the respective countries. The 2 key, and perhaps most important changes are in Part L – conservation of fuel and power and Part B – Fire safety where the introduction of sprinklers in residential premises commences on the 30th April 2014.

The new Part L Wales will commence at the end of July 2014 and will have different standards and approaches. There are 2013 versions of SAPw and SBEMw NCM assessment tools for new buildings and there are a number of technical and legal differences in the Welsh system.

"The new look Approved Documents have an easier to follow format, are easily accessible and there is an improvement to the level of information available to decide design options."

The changes deliver:

- Tougher standards on commercial buildings;
- A more sympathetic approach to meeting onerous and expensive standards on the new housing market;
- Steps to upgrade the existing housing building stock;

- Improvements in clarity and simplicity for compliance and understanding of the documents.

These key decisions and strategy for future changes can be found on the Wales.gov website.

The new look Approved Documents have an easier to follow format, are easily accessible and there is an improvement to the level of information available to decide design options. Following feedback from industry and contractors at all levels, Wales has introduced "recipes" which indicate an approach to meeting the targets. These are based on the Notional Building (the software comparison model in SAP / SBEM) and allow designers and contractors to identify the level of performance and efficiency on all the various components.

"Over the last 2 years there has been an evolution of separate law and guidance resulting in all of the Approved Documents being unique to the respective countries. The 2 key, and perhaps most important changes are in Part L – conservation of fuel and power and Part B – Fire safety…"

Key differences in technical approaches to England are:

- The structuring of a timetable for zero carbon homes and non-domestic buildings by 2019/2021. (Note – England have targets for zero carbon homes by 2016);

- A target for 2013 – the domestic uplift over 2010 standards is 8% and the non-domestic is 20%. (England targets are 6% and 9%) Note that domestic standards are different – the actual targets within SAP are identical and the variation results from the different build mix delivered in Wales (e.g. flats, detached, semi-detached and link houses). This will assist national house builders to deliver consistent designs across England and Wales;

- Mandatory Criteria 2 standards in dwellings limiting options for the flexibility of choices on U values;

- Measured as primary energy targets ensuring fabric standards are maintained (note this is in lieu of the TFEES system in England);

- Consequential improvements required on dwellings;

- Consequential improvements on commercial buildings under 1000m^2;

- Modelling of unique building types in SBEM based on the Welsh build profile.

We now therefore have a dedicated approach to the unique build profile in Wales and we are looking at the next necessary changes such as reviewing TAN22 (Planning Guidance requiring CSH and BREEAM standards). ■

Andy Thomas is the Building Regulations Manager for the Butler & Young office covering Wales. He is also the representative on the Building Regulations Advisory Committee for Wales, advising ministers on the changes and technical approaches to delivering new Regulations for Wales.

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Courtesy of Kier Construction and Martin Cleveland

Sealing the envelope

Tony Millichap, Technical Manager at Kingspan Insulation Limited explains how thermal efficiency can be maximised and all-important energy and carbon savings can be achieved...

As buildings become more highly insulated, thermal bridging subsequently has a greater impact on heat loss, and with building fabric performance requirements becoming tighter than ever, this is an area that is increasingly significant. It is no longer good enough to use make-shift methods around window and door openings with materials that provide inadequate insulation. Insulated cavity closers provide a simple and effective method of dealing with this issue, providing a damp proof barrier and minimising thermal bridging around openings.

What are the issues?

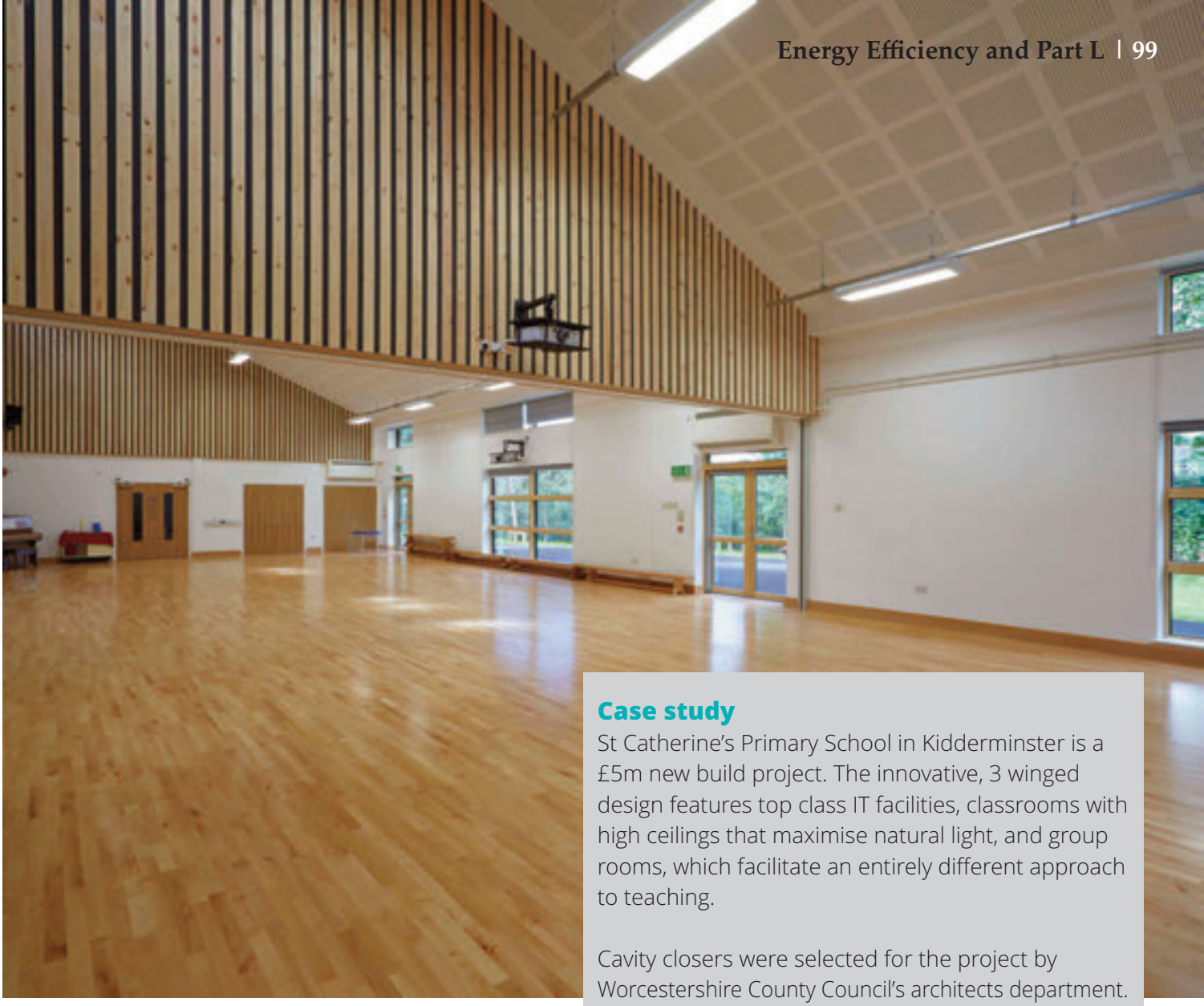
Openings can easily let the construction down if they are not treated so as to minimise thermal bridging. Under the latest Approved Documents to Part L, there is a new 2013 Notional Building Specification, which, like its predecessor, uses linear thermal bridging as one of the parameters for achieving compliance.

Linear thermal bridging is the term used to describe the heat loss (psi-value) at junctions between elements and around openings in elements, where there is an interruption in the insulation layer, and this is taken into account when calculating the whole building carbon dioxide emissions, which will determine whether or not the construction is compliant.

Quite apart from the issue of compliance, thermal bridging can also produce problems of condensation, which may lead to unsightly mould growth and eventual deterioration of plaster and paintwork.

The solution

Cavity closers can maintain a continuous insulated barrier around window and door openings, providing improved psi-values and helping to achieve compliance. It avoids the need for cut bricks, blocks or special reveal blocks, thereby simplifying and speeding up



Courtesy of Kier Construction and Martin Cleveland

the construction process and saving both money and time spent on site. Cavity closers can either be built in with frames or used to pre-form openings when frames are fitted later, helping to ensure the accuracy of opening sizes.

Using a cavity closer with premium performance modified resin insulation can yield psi-values significantly better than those assumed in the 2013 Notional Building Specification. These products can not only improve the overall thermal efficiency of the building envelope, they can also provide up to 60 minutes of fire resistance; a particularly important consideration for schools and hospitals.

Another benefit is that it can include an integral damp proof barrier, effectively preventing the problems frequently associated with traditional methods of closing cavities and thermal bridging.

Case study

St Catherine's Primary School in Kidderminster is a £5m new build project. The innovative, 3 winged design features top class IT facilities, classrooms with high ceilings that maximise natural light, and group rooms, which facilitate an entirely different approach to teaching.

Cavity closers were selected for the project by Worcestershire County Council's architects department. The products, installed by main contractors Kier Construction, were specified to tightly fit the school's 140mm wall cavity in a single thickness.

Energy efficiency was a top priority for the school, and the cavity closers played a key part in accomplishing this aim, and contributing to the insulation envelope and preventing thermal bridging around the windows and doors.

The products also helped the building to meet requirement B3 of the Building Regulations for England & Wales regarding internal fire spread. The product specified was certified to give 60 minutes integrity and 30 minutes insulation with a PVC, metal or timber window, having been tested in a UKAS accredited fire resistance test utilising the general principles of BS 476 Part 20: 1987. This key performance capability can help to prevent fire and smoke from breaching the building's compartmentation through the wall cavity.

Courtesy of Kier Construction and Martin Cleveland

Simple

Quality of build is increasingly coming under scrutiny and cavity closers are a simple way of making sure that, for some areas at least, as-built readily meets design. With such an effective and straightforward solution available to improve psi-values, dealing with openings and providing assured levels of fire performance, there is no need to 'cobble' together some second-rate means of closing cavities, risking both non-compliance and long term problems with condensation.

Perhaps most importantly, the overall building envelope performance is not compromised by inadequate construction detailing around junctions and openings, allowing thermal efficiency to be maximised, and making those all-important energy and carbon savings. ■

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If you are the owner/adjoining owner of a property under development or renovation along the boundary line or within 3 to 6 metres (including foundations) of an adjoining owner (neighbour), you may need a Party Wall Award in place before any work commences. A Party Wall Award is a legal document. Plans and area of a build/renovation needs to be inspected to ensure that the condition of the adjoining wall/ party fence is not compromised in any way; this type of work comes under the Party Wall Etc Act 1996.

You do not need to appoint an "adjoining owners surveyor" until such time as you receive the party wall notice from the building owner (the person having the work carried out). If you are unsure call us.

We are experienced in this type of survey and offer our advice and experience if you are undergoing any type of new build or renovation, which encompasses a neighbouring property.

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For more information see our article about how the Party Wall Act affects building work in the next issue.

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Educating the party

Education and advice for professionals involved in dealing with the Party Wall etc. Act 1996 is a crucial element. Here, James Jackson, Head of Training and Education with the Faculty of Party Wall Surveyors provides an outline of the current situation...

Previously, my colleague Alex Frame has provided information and guidance about party wall matters in Adjacent Planning & Building Control Today via 'An invitation to the Party' and 'Surveying the paper trail'. Alex and I teach the Party Wall Act to (hopefully) interested seminar delegates, and from time to time we are viewed as the prophets of doom when we draw to the attention of our audiences what may happen when notices are incorrectly served, or Party Wall Awards fail to address matters specifically governed by the Party Wall etc. Act 1996.

Our response is not a negative one; quite the opposite. By providing the relevant information, we serve to improve the knowledge of party wall surveyors and their appointing owners in the hope they will avoid the more obvious pitfalls. Our aim is to ensure they produce and serve accurate and appropriate party wall awards, thereby ensuring their appointing owners will not feel the need to face the uncertain outcome of what will almost certainly be an expensive appeal against an inadequate, inaccurate or unsatisfactory award.

The Party Wall etc. Act 1996 may be a perplexing novelty for anyone living outside London and regrettably, I sometimes become a little disillusioned with the adversarial approach taken by a number of party wall surveyors (mercifully, few and far between) who choose to place the maximisation of their fee recovery above the production of a fair, and judiciously presented impartial settlement of the neighbourly dispute over which they have been appointed to preside. Hence, the reason for our commitment to ensuring a sound and thorough understanding of the whole of the party wall processes being taught to our seminar delegates.

However, it is inevitable that under circumstances in which members of the general public are faced with the complexities of legislation governing the whole of construction processes, they will approach local authorities as their first port of call for advice as to how to respond to their neighbours when they receive a party wall notice, or become aware of the fact that they, themselves, are required to implement the Act and serve notices upon their neighbours.

"In addition to the provision of general advice and guidance to members of the general public, a specific responsibility is imposed upon local authorities by the Party Wall etc. Act 1996; namely, the requirement to arrange for a person to be nominated as the 'Appointing Officer'."

At the forefront of local authority departments are Building Control Officers. They are quite rightly positioned at the forefront of local authorities as individuals who are expected to respond to queries and concerns about building practices (good, bad and indifferent), ensure that Building Regulations are complied with, provide periodic and final inspections of building works, and deal with the inevitable concerns about relations between neighbours which will inevitably, from time to time, invoke the Party Wall etc. Act 1996.

Administering the Party Wall etc. Act 1996 is very much a procedural exercise, and whilst many Building Control Officers possess more than just a vague

Continued to page 104...

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PWS

James Jackson FFPWS
Head of Training and Education
The Faculty of Party Wall Surveyors

Continued from page 102...

awareness of the requirements of the Act, in-depth knowledge of party wall procedures becomes a specialism in its own right from time to time. With this in mind, the Faculty of Party Wall Surveyors (FPWS) works closely with Building Control Officers across the length and breadth of the country. The FPWS actively encourages Building Control Officers to attend party wall training courses, and in-depth seminars form part of this training service for individuals and local authority departments generally.

In addition to the provision of general advice and guidance to members of the general public, a specific responsibility is imposed upon local authorities by the Party Wall etc. Act 1996; namely, the requirement to arrange for a person to be nominated as the 'Appointing Officer'. This person should be in place to deal with the few occasions during which appointed party wall surveyors are unable to reach agreement as to who should be selected to act as their Third Surveyor. Established practice suggests that this duty falls upon the Chief Building Control officer within the local authority, but it does not necessarily rest with this particular person.

The Appointing Officer will be called upon to select a Third Surveyor when, as stated above, appointed surveyors are unable to reach agreement as to who should act in that capacity. Again, the FPWS is able to assist the Appointing Officer in making that choice insofar as the Faculty maintains a register of senior members of their organisation (all of whom have attained fellow grade of membership and are suitably qualified to perform a somewhat demanding role), and should local authority Appointing Officers require any help in providing a suitably qualified person, the Faculty will be able to offer assistance in this matter.

Educational matters are of prime importance to us and recently, some of our senior members have been working towards the creation of an NVQ in Party Wall Studies. This is being produced in conjunction with ABBE who are a principal organisation responsible for the advancement of education standards and training throughout the British Isles. The NVQ is at present embryonic, but we are optimistic that those persons, who require a working knowledge of the Party Wall Act without being actively involved in the day to day administration of the Act as practicing Party Wall Surveyors, may well consider that such an advancement of their education will be particularly helpful. It is to this end we would make Building Control officers aware that such a qualification now exists and may prove beneficial to all who at some time or other, may find themselves attempting to provide advice and guidance to bewildered members of the general public. ■

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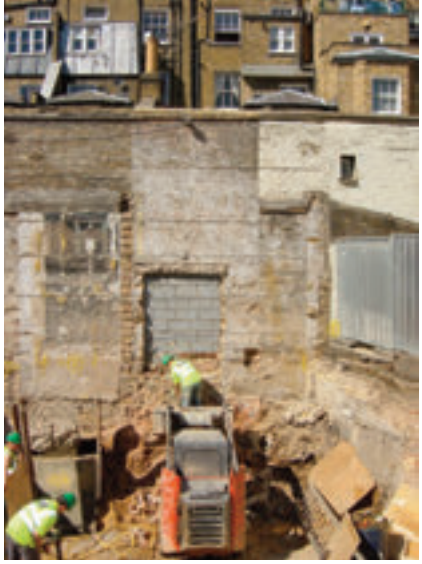

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We have been providing advice on party wall matters to institutional, corporate, and private clients on both residential and commercial property for nearly 40 years.

Our surveyors are all Chartered Building Surveyors (MRICS or FRICS) with considerable post qualification experience and with most being members of the Pyramus & Thisbe Club, an organisation which promotes excellence in party wall surveying practice. In addition our surveyors are trained to combine their academic, practical and people skills to resolve disputes and obtain agreements so that the developments can proceed on time, and in a manner which protects the adjoining owner's property and interests.

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- Providing advice on Rights of Light Issues
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An Anniversary for The Pyramus & Thisbe Club

Sara Burr, Director and Head of Neighbourly Matters at Cardoe Martin Burr Ltd details the highlights of The Pyramus & Thisbe Club's 40th Anniversary conference...

On the 20th March 2014 the 40th Anniversary Conference of the Pyramus & Thisbe (P&T) Club was held at the Institution of Civil Engineers, London. The members' only event is held every other year. Michael Kemp, the current London Chair ran the morning session and myself as Chair in waiting, ran the afternoon.

To add an informative yet entertaining start to the session, the various speakers were introduced by sporting commentators, Andrew Schofield and David Moon.

Alan Gillett, a founder member, started the day by giving an insight into when and why the club was started and by whom. This was followed with David Powell giving an insight into the life of a land surveyor.

We always enjoy a legal update and to hear the latest opinions on particular issues, and James Beat and Richard Webber gave an informative joint talk on 'Appeals' and 'Injunctions', with a snooker theme. Of course we all know that lawyers look for positioning as part of their game plan, so that was most apt. It was also useful for surveyors to understand the process of both matters and the costs that can be incurred, and what happens with those costs, for example; who bears them?

Piling techniques cover a wide variety of issues, and Derek Glenister covered them all in great detail, including whether or not some of the types involve excavation, and should be notified or not.

Hugh Cross, David Moon, Ashley Patience, Chris Zurowski and I then entertained the delegates with a pre-lunch slot focused around obscure party wall situations. Warring neighbours, deep basements, access to carry out the work, attending with police and selecting the third surveyor were just a few of the topics covered.

The grave-yard slot after lunch was filled by William Minting and Mikael Rust, with Alistair Redler acting as 'referee' to ensure that the topic of 'There is devilry in the detail' was kept in line.

Following on from that, Edward Cox and Nick Isaac did battle over Awards, with the pitfalls, the different formats and clauses and pitfalls from a Surveying and Legal perspective.

The day was concluded with a presentation of the new P&T e-book [1]; David Moon updated members on Whispers and the success of the Subterranean Development Bill; Andrew Schofield discussed the Boundary Dispute Resolution Bill, and Michael Kemp rounded up the event with a summary of what we have achieved as a branch.

All speakers have been asked to write articles based on their talks for the next edition of Whispers. If you are interested in reading this, then please contact the Pyramus & Thisbe Club and sign up today. ■

[1] http://www.adjacentgovernment.co.uk/wp-content/uploads/2014/02/Cardoe-Martin-Burr-ebook-web.pdf

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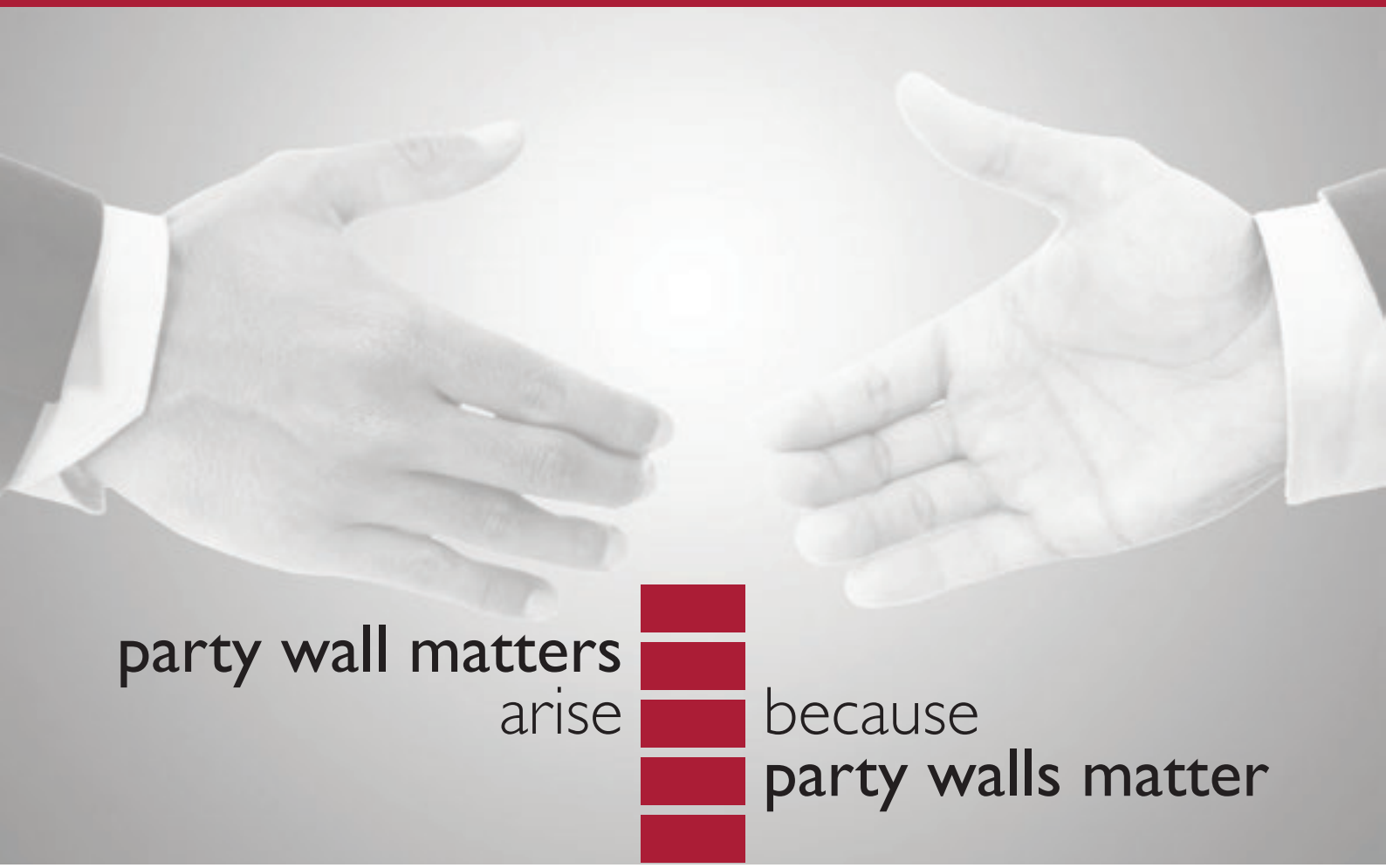

party wall matters arise because party walls matter

party walls limited are independently regulated and experienced specialists in party wall issues affecting both building and adjoining owners.

The Party Wall etc Act 1996 applies for the following works:

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Third Party Certification unravelled

Graham Ellicott, CEO of the Fire Industry Association (FIA) explains why buying fit for purpose fire safety products are a must...

If you purchase goods or services you want to be confident that they are fit for purpose. Not just that, it is a legal requirement for the purchaser of fire safety services to ensure that the person or organisation carrying out the work is 'competent'. As most people commissioning this work are unlikely to be experts in fire safety, how can they be sure that the individual or organisation they are hiring is competent to do the job?

Third Party Certification (TPC) is evidence that a service or product adheres to certain standards. An independent expert, the third party, has assessed the service or product and certified that it complies with those standards. TPC can cover the technical qualities of what is being provided, but it can also relate to environmental, ethical or other qualities. This allows purchasers to be confident that what they are purchasing is fit for purpose, or that the supplier is capable doing the job.

What is Third Party Certification then?

TPC is when a Third Party Certification Body (CB) assesses the qualities of a supplier by comparing them with the requirements of a particular scheme. If the organisation meets these standards then it is issued with a certificate detailing the scope of its certification.

The supplier (now a Certificated Organisation) is permitted to claim compliance with the scheme, display copies of their certificate and, in most cases, display the logos of the scheme and the CB. Depending on the scheme, then they will also issue certificates of conformity for the product/service they provide, such as a complete fire alarm system or extinguisher service.

There is a wide range of TPC schemes covering such diverse areas as the installation and maintenance of fire alarms, extinguishers, sprinklers, emergency lighting, fire risk assessments, fire doors and passive fire protection, so you need to make sure you use a supplier with certification to the relevant scheme for your needs.

How do I do that?

First you need to identify the right scheme owner or CB for the product/service you are looking to commission. Once you've identified this you can visit that scheme owner or CB's website and draw down a list of potential suppliers.

You can also go to the FIA website and draw up a shortlist of members in the relevant product and geographical area. TPC is a requirement of membership to the FIA as we strongly believe that TPC is the only effective way of ensuring the quality of products and services provided for fire safety.

Ensuring you use competent suppliers is both a legal requirement and a practical necessity. With such a range of schemes available, you can make sure your specific needs are met. Getting it wrong can be very costly through fines, legal costs, loss of property and loss of business. By seeking out suppliers with TPC, the risk is substantially reduced and your peace of mind is greatly increased.

For more information on Third party Certification and for a list of schemes download the FIA's whitepaper at www.fia.uk.com/en/third-party-certification. ■

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The voice for fire engineering

Martin Duggan, General Manager at the FIA outlines the launch of the new Fire Engineering Council and the key concerns they intend to address...

Fire engineering needs a voice. As a profession it is still fairly new (30+ years) compared to other construction professions, and it is time that it stood up to be recognised alongside the others.

There are many challenges facing the industry today such as:

- **Competency –** There is currently no industry-wide competency criteria for fire engineering companies. This results in a wide range of companies offering fire engineering services despite not having any real expertise.

- **Scope of services –** Fire engineers are often only employed during the design stage of a project, without any check that the building that is actually constructed complies with the fire strategy.

- **Competent, independent third party approvals –** Concerns have been raised about the independence and extent of third party checks under The Building Regulations, as well as the fact that it only involves very limited site inspection.

These are just the top 3 concerns, and there are many other problems to address. The UK Government has been clear that it is up to the industry to take the lead in resolving any concerns within their particular areas, so the fire engineering industry has to take responsibility in addressing these issues.

The Fire Industry Association (FIA) is a well-established trade association representing fire detection & alarm and extinguishing systems and portables, manufacturers and installers/maintainers. We also represent fire risk assessors and suppliers to the Fire & Rescue Services.

At our Annual General Meeting last November, we formally opened membership to fire engineering companies as we believe that we have the infrastructure to help them resolve the issues within and around this industry sector.

As with the other membership sections, we have established a council to represent these new members and it is the council that will identify and work on the issues, as well as identify the key messages and target audiences.

"A trade association's principle is that the sum of the parts can achieve more by working together than they can by working alone."

We estimate 30-50 companies operate in this sector and we are targeting 50% with recruitment drives underway.

We have a good relationship with the Institution of Fire Engineers (IFE), the already long established professional body, and believe that by working together we can help resolve the challenges facing the industry. To support this coordination, the IFE has a representative on the Fire Engineering Council. In simple terms the IFE is interested in individuals and their competencies. A trade association can look at the wider commercial market and we represent companies rather than individuals.

So far we have developed a competency criteria for membership of the FIA Fire Engineering Council, based on employment of Chartered Fire Engineers. The criteria is currently set at a level that most competent fire engineering companies should be able to meet, but with longer term plans to raise the bar. This is intended to encourage companies to invest in training staff to meet the higher criteria that will be introduced in future years.

We have also been working to develop a 'scope of services' which we believe will encourage employment of fire engineering companies through the design and construction phases of projects. The objective is to ensure that the end user of the building is provided with confirmation that the completed building provides a high standard of fire safety, along with an 'as built' fire strategy which will help them understand how the building is to be operated and maintained. Once finalised, we will approach RIBA to hopefully line these up with their other 'plans of work'.

With regards building control, ensuring the independence of Approved Inspectors is currently an area of concern. Approved Inspector Regulation 9 says there must be clear separation between design and third part approval. However, some companies may be compromising that by openly offering 'one stop shop' services, with design and approval by 'sister' companies which would appear to be a breach of Regulation 9. On this matter we have already submitted our concerns to the Construction Industry Council and hope to work with them to provide stronger and clearer guidance.

Can we make a difference? A trade association's principle is that the sum of the parts can achieve more by working together than they can by working alone. There are many concerns within the fire engineering industry at present, but there are also some great fire engineering companies and fantastic people working within them. I'm sure that together we can help move the industry forward in a way that benefits everyone. ■

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New fire sprinkler law for Wales

Ian Gough, senior technical advisor at BAFSA gives an overview of the upcoming changes to UK fire safety law...

A major change to UK fire safety law comes into effect in April this year (2014) when automatic fire sprinkler systems are to be made compulsory in all new and converted residential properties in Wales.

The Domestic Fire Safety (Wales) Measure 2011 was finally approved by the Welsh assembly in October 2013 when the Minister for Housing, Carl Sargeant, signed the regulations into law and a Commencement Order[1] was issued.

In Wales alone, data from the previous 10 years had shown that on average 17 deaths and 503 injuries per year were caused by fires in residential properties; and, while there had been a reduction in the number of deaths from fires in the home during this period, the Welsh Government believed that the number was still too high.

Consequently, as from 30th April 2014 all new and converted residential care homes, certain hostels, B&Bs and student accommodation will be required to include in their design fire sprinklers before approval can be given by building control authorities. A second tranche of legislation requires all new and converted residential property, including houses and flats, to be protected by sprinkler systems as from 1st January 2016. The new rules will not, however, apply to hospitals or hotels.

The legislation is intended to reduce the number of deaths and injuries from fire, improve the safety afforded to fire-fighters and contribute to the sustainability of new developments.

Legislative Competence Order

Under the 2006 Government of Wales Act, the Welsh assembly can create its own legislation and subsequently Vale of Clwyd Assembly Member (AM), Ann Jones, won an assembly ballot to be the first individual AM to introduce a Legislative Competence Order (LCO).

Ann, having worked in the fire service for almost 30 years, put forward the LCO to make it compulsory for automatic fire sprinklers to be fitted into all new homes in Wales. She said that the experience of her work in the fire service had made her aware of the devastating impact of fires – not just on the victims of fires and their families – but also on those responding to incidents that have caused death and injury to people in their own homes.

The Vale of Clwyd AM's proposal, which was originally passed with cross party support in 2011, has been described as historic by Chief Fire Officers across Wales and has attracted the support of organisations such as the Fire Brigades Union and Chief Fire Officers Association.

Cost Benefit Analysis

Understandably, the issue of financial cost has been a major concern and questions have arisen regarding proportionality – especially from social housing providers and builders. For this reason therefore, and as part of the regulatory process, the Building Research Establishment (BRE) was tasked with analysing the losses caused by fires in residential buildings in Wales and the projected costs of protecting new buildings with sprinklers.

Published in April 2012, the BRE report[2] has generated considerable discussion and debate particularly as it found that whilst sprinklers were cost effective when installed in new care homes and halls of residence etc, they would not be cost effective in single occupancy houses. However, supporters of the Measure, such as the Chief Fire Officers' Association, have challenged this view by pointing out that the figures used to determine the statistical value of a life in the UK is lower than that used in other countries. Indeed, in Norway the figure used is almost double and the USA places a value 3 times larger than is used here.

Sprinklers in most new build houses are simply connected to the mains

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Fire Sprinkler 2014 will be the only conference outside of the USA to focus on fire sprinklers in 2014. Sprinklers are still not used in Europe as widely as they should be and this event is intended to demonstrate best practice and more effective use of sprinkler technology.

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To complement the delegates' experience there will be an exhibition supported by a range of international companies providing products, equipment and expertise.

Visit www.firesprinklerinternational.com or more information contact: wendy.otway@btinternet.com

Furthermore, although the figures indicated that the average cost of a sprinkler system would be approximately £3,075 per house and £879 per flat, organisations such as the European Fire Sprinkler Network believes that the costs will reduce, as has happened in other countries around the world where similar legislation has been introduced.

Water Supplies

With an eye to both effective and efficient systems, the fire sprinkler industry considers that: provided sprinkler installations are properly designed and installed to the current British Standard (BS 9251) and that the co-operation of the local water company is obtained, savings should be achievable on the figures quoted. This is because connections can be made directly to the town main supply, thus alleviating the need to always supply water from a dedicated tank and pump and which the 'Regulatory Impact Assessment' figures assumed would necessarily be the case. Indeed, the British Automatic Fire

Sprinkler Association (BAFSA) is of the opinion that, given adequate pressures and flows in supply pipes, almost 90% of new single occupancy houses could be fitted with sprinklers in this way thereby reducing the estimated cost by about one third.

Therefore, to ensure that all parties appreciate the need to provide cost effective life safety sprinkler systems that comply fully with water regulations, efforts have been made to secure the support of the water supply companies both in Wales and throughout the UK, and BAFSA is working closely with them and the organisation Water UK.

One important outcome of this work has been the recent publication of a new protocol[3] which has been agreed between the fire and water industries.

Competent Contractors

Clearly, a growing demand for sprinklers will require the recruitment of extra staff and the potential exists for many existing companies to expand and even new companies to evolve.

Another challenge therefore, will be to ensure that contractors employ competent workers so that equipment is properly installed and maintained.

Suitable training and 'up-skilling' courses and qualifications are considered to be essential, and work is underway, in collaboration with Neath Port Talbot College in Swansea, to provide additional training capacity for Wales. The college has recognised the need for practical vocational training in this field and has already secured the services of an experienced fire sprinkler engineer. Interestingly, this is probably the first building college in Europe to develop such training.

Evolution of Sprinklers for Life Safety

Automatic Fire Sprinkler systems were invented some 200 years ago. However, up until relatively recent times, they have been used primarily as a 'property protection' tool rather than for 'life safety'.

But the development of 'fast responding' sprinkler heads in the 1980s has now enabled sprinklers to be used for life safety applications and much use of these products has been made in Canada, the United States of America, Scandinavia and New Zealand.

With this growing experience, many experts in the field of fire safety are calling for better use of such systems. Indeed, it is believed that most, if not all, fire and rescue services are pressing governments to act and introduce legislative measures so that residential fire sprinklers become much more widely used.

Summary

Wales has taken a major step forward in the fight against fire; they will surely be joined by others soon. It therefore behoves all involved with the provision of good quality housing to take note. After all, as one delegate bluntly put it at a recent seminar on the topic: "housing is currently so scarce we really cannot afford to let it burn down." ■

References:

[1] The Domestic Fire Safety (Wales) Measure 2011 (Commencement No.1) Order 2013

[2] Cost Benefit Analysis of Residential Sprinklers for Wales – BRE Global – April 2012

[3] Guidelines for the Supply of Water to Automatic Fire Sprinkler Systems – National Fire Sprinkler Network Water Liaison Group – December 2013

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Certifying the assessors

SSAIB Chief Executive Geoff Tate describes the BAFE SP205 UKAS-accredited certification scheme's aims, what it involves and the benefits to customers and certificated service providers alike...

The important area of fire protection standards is one that British Approvals for Fire Equipment (BAFE), the independent third party registration body for the fire protection industry, is dedicated to improving. Established 30 years ago as an independent not-for-profit organisation, it's supported by statutory bodies, fire and rescue services, insurers, and leading trade and certification bodies including SSAIB.

BAFE's objective is to bring a single registration scheme to market for each fire protection product or service for which third party certification is considered appropriate, and life safety fire risk assessment is one of the most recently introduced of these. In England and Wales employers, owners, landlords or occupiers of business or other non-domestic premises are responsible for fire safety and known as the 'responsible person'/'duty holder' – fire safety rules are different in Scotland and Northern Ireland.

Competence and training

It's essential that the person(s) carrying out the fire risk assessment are competent and have received appropriate specialist training, while the purpose and scope of the assessment should be clearly specified and the resulting documented assessment should be 'suitable and sufficient'. While the fire risk assessor has a duty of care to the organisation involved, ultimate responsibility for the adequacy of the fire risk assessment rests with the duty holder (normally a company) or responsible person. This follows a change in fire safety law with the introduction, in October 2006, of the Regulatory Reform Order (Fire Safety) 2005.

Given these circumstances, BAFE's SP205 UKAS-accredited certification scheme enables those responsible, and required under law to carry out a fire risk assessment of a premises, to employ a

specialist third party company to provide this. Taking such a step will allow them to demonstrate that they've taken the necessary reasonable action to comply with their legal obligations and requirements under fire safety legislation.

Besides those responsible for carrying out such an assessment, the new independent third party certification service offered by SSAIB and others will also benefit fire risk assessment providers, who'll be able to use their accreditation to attract end user customers. Certification provides a benchmark recognition of a company's capability in providing high quality fire risk assessments – by showing that they have the required technical and quality management competency, and that their assessors possess the relevant proficiency and knowledge.

Interest in fire risk assessment is growing steadily, driven by factors including the scope of the Regulatory Reform (Fire Safety) Order 2005 in England and Wales and the equivalent Scottish legislation – the Fire (Scotland) Act 2005 – and Northern Ireland – the Fire and Rescue Services (Northern Ireland) Order 2006. Achieving SP205 certification offers accredited providers with a significant marketing tool by enabling them to display a valuable certification mark (including the 'crown and tick' logo). Here at SSAIB we've invested time and resources in achieving this UKAS accredited approval, so that end users with responsibilities under the law can rest assured that risk assessment service providers holding certification approval will provide fire risk assessments that fully comply with the law.

Independent views

So how do companies themselves, who've already achieved been certificated under the BAFE SP205 scheme, feel it will provide benefits? Michael Clifford, Managing Director of one company – Beacon Fire Safety – which gained it last year, comments: "This will assist us in demonstrating to our existing and potential clients that we are a competent provider of fire risk assessments and that we are serious in proving this commitment to them."

Meanwhile, offering another independent viewpoint, is Paul Gotthardt, Director of Fire Safety Solutions. He believes the scheme allows customers an easier way of ensuring that the responsible person/duty holder has fulfilled their obligations: "Gaining SP205 certification helps me to prove to our existing and potential clients that we carry out due diligence and are up to the mark. A little, or indeed the wrong knowledge, can be dangerous and the SP205 scheme provides a benchmark for reassurance. This is a tremendous marketing tool and we'd recommend it to others." ■

Fire risk assessment – what's involved

A fire risk assessment is a process involving the systematic evaluation of the factors that determine the hazard from fire, the likelihood that there will be a fire, and the consequences if one were to occur.

The process involves a physical inspection of the building to determine the adequacy of the existing fire precautions and the need for any additional measures. Of equal importance to the physical inspection is a review of fire safety management in the organisation and consideration of the human factors – how people will respond to an emergency and whether they will take appropriate action.

The scope of a survey involved in a fire risk assessment should include fire hazards, emergency escape lighting, compartmentation, fire detection and fire alarm systems, and smoke control systems.

Courtesy of CS Todd & Associates Ltd

SSAIB, the UK's leading fire, security and telecare certification body for organisations – which celebrates its 20th anniversary in 2014 – also offers a range of management systems certification schemes, including ISO 9001 quality management systems certification and ISO 14001 environmental management systems certification. Over 1500 companies are now on the SSAIB's register.

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Don't gamble with **your** fire risk assessment!...

If you are responsible for a business premises, the law requires that you have a fire risk assessment. To find competent providers, you need BAFE.

Under the provisions of the Regulatory Reform (Fire Safety) Order 2005, the Duty Holder or Responsible Person for a building is required to make a Fire Risk assessment to clarify the fire precautions necessary to ensure the safety of staff, customers and property.

At present there are no adequate means to ensure the competence and reliability of a company commissioned to carry this out.

BAFE scheme SP205 has been developed specifically to address this situation, and will provide reassurance to the Responsible Person that they are doing everything possible to meet their obligations.

So don't leave everything to chance. Make sure that your suppliers are registered with BAFE.

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Businesses in the UK have a legal requirement to carry out a fire risk assessment. With such an important step to preventing fire in the workplace, Chubb Fire looks at how businesses can go about completing their own fire risk assessment and asks if you need to employ the services of a specialist fire consultant, or if you can do it yourself.

Chubb is a leading provider of Security and Fire Safety solutions for businesses and industry nationwide and was voted the number one brand in fire protection and security in the UK for 2010. Jane Garland is Marketing and Communications Director for Chubb and has spent the last 10 years involved in communicating fire safety and fire legislative responsibilities to businesses and organisations in the UK.

Fire Risk Assessment – Do it yourself or hire a consultant?

The consequences of fire is something no employer wants to contemplate, especially when you consider the statistic that over 70% of businesses involved in a major fire either do not reopen, or subsequently fail within three years of the fire. Which is why in the UK, authorities demand by law, the most stringent fire safety practices to ensure firstly, staff and employee safety, but also business continuity. Chubb Fire recommends that the first step to preventing a fire is taking time to do a fire risk assessment – not only a very sensible investment; it is also a legal requirement too.

Fire Legislation in the UK

• The Regulatory Reform (Fire Safety) Order 2005 England and Wales • The Fire Safety (Scotland) Regulations 2006 Scotland.

The Regulatory Reform (Fire Safety) Order 2005 requires employers to carry out a fire risk assessment that considers not only the safety of employees and visitors to a site, but also the protection of property and the future job security of employees should your business disappear. Employers need to consider fire fighters safety, should fire fighters have to enter burning premises and also the environmental impact of a fire.

Legislation further stipulates that if you employ five or more people, your findings and actions must be documented. The Fire Brigades actively enforce the regulations through ad hoc inspections, and fines and prosecution for non-compliance frequently occur.

With all these things to consider, it's not surprising that companies are uncertain how to go about completing their fire risk assessment.

How do I do a Fire Risk Assessment? Luckily, there are lots of options available to help UK businesses carry out their fire risk assessment.

One option is to get a Fire Risk Assessment Consultant to do your fire risk assessment for you. This is sometimes a more costly option, but comes with a peace of mind that your site has been properly assessed. A consultant will come to your premises, and working closely with you, will provide a comprehensive written report to help you complete the actions identified to minimise fire risk and demonstrate compliance with your legal and insurance obligations. This is probably suitable if you do not have a health and safety officer, a fire safety manager or a responsible member of staff who is competent to carry out a fire risk assessment, or if you have a site considered to be high risk – i.e. you have at your site flammable liquids, combustible materials, hot processes (welding etc) or chemicals.

When selecting a Fire Risk Assessment Consultant, you should refer to a third party certification scheme as a means of demonstrating the consultant has the right skills and qualifications to do the work. All of Chubb's Fire Risk Assessment Consultants have held senior ranking positions within the fire brigade and hold a minimum qualification of Graduate Member of the Institution of Fire Engineers (IFE). A consultant will draw upon a depth of knowledge and experience that comes from having spent many years within fire safety and prevention. Whilst businesses can never completely subcontract out their responsibilities under fire safety law, by using a consultant you can share this responsibility. In the event of a fire, a consultant would stand alongside you and defend your fire safety strategy.

Alternatively, if you decide to carry out your own fire risk assessment, there are a number

of tools to help you identify and evaluate the risks. Some advice is free, and the Government has published extensive sector specific guidance notes, to advise businesses on what to do. You can also purchase a document called a PAS79 – a British Standard guidance and recommended methodology of how to complete a risk assessment. For small to medium businesses with a low fire risk, a fire consultant is not always required.

For additional help on completing a fire risk assessment, Chubb direct their low risk customers to their on-line service at www.chubbriskmanager.co.uk – an easy to use on-line tool that leads you through a systematic look at what in your workplace could cause a fire and how the risk of fire can be minimised. Questions are answered by clicking 'yes' or 'no' or by selecting from simple drop down menus. By working through the online tool step by step, you will finish up with a documented fire risk assessment that will demonstrate compliance with the Fire Safety Order. You will be able to use your recorded findings to review and revise your fire safety strategy on an ongoing basis. Once completed, the data is held securely off site and you can access it from anywhere.

If you take your business seriously, then adopting a healthy fire safety culture from the outset will ensure a long and prosperous – and safe – future for all those who work with you.

Chubb

Chubb Fire & Security
Tel: 0800 32 1666
www.chubb.co.uk

Case study – Lanhydrock House

Lanhydrock House in Bodmin, Cornwall, is a period property set in vast grounds covering almost 900 acres, with some parts of the Grade I listed building dating back as far as the 1620s. Sadly, the dangers of fire are by no means unknown in the house's history; in 1881 it was ravaged by a great conflagration that started in the kitchen chimney and was spread by high winds, destroying many of the house's Jacobean features. Consequently it was refurbished in high Victorian style, with a number of fire safety precautions introduced that still survive today.

Keen to preserve this valuable property and the rich history to which it bears witness – including a priceless Jacobean ceiling in the Long Gallery of the north wing, which survived the 1881 fire – the National Trust, which has managed the house since 1953, carried out extensive fire safety works and turned to Chubb to upgrade its existing detection technology and supply a reliable and effective fire alarm system.

Detectors were installed throughout the property, as well as in a church within the grounds that is also connected to the fire alarm system, all to British Standard L1 requirements. Staff can also be alerted by pager in the event of a fire and the addressable system means that the exact location of a fire can be pinpointed to a specific zone.

Following the two year project to make Lanhydrock House one of the most fire resistant heritage attractions in the country, it was awarded a certificate of passive fire resistance, which recognises the fire prevention qualities of the vertical and horizontal fire compartments that were created throughout the property.

To supplement these passive measures Chubb installed a new fire alarm system that includes three new Vesda units that give the earliest possible warning of any potential fire.

A new CDM – a wholesale change

James Ritchie, Head of Corporate Affairs at The Association for Project Safety (APS) examines the new proposals for CDM regulations and outlines what challenges they present for health and safety in construction...

The Health and Safety Executive (HSE) have finally published their long-awaited Consultation Document for their proposed changes to the CDM Regulations. At the time of writing, the proposals have only been public for an hour or so, but there are some fundamental issues that the construction industry will have to get to grips with if these proposals are to be a success.

The policy objectives behind the proposed Construction (Design and Management) Regulations 2015 (CDM 2015) are:

- To maintain or improve worker protection;
- Simplify the regulatory package;
- Improve health and safety standards on small construction sites;
- Implement the Temporary or Mobile Construction Sites Directive (TMCSD) in a proportionate way;
- Discourage bureaucracy and meet better regulation principles.

Fine aspirations but will they actually be achieved? We have been here before – when CDM2007 was created.

The most important first step must be to look carefully at the wording – not simply to judge the overall principles and ideas being put forward, but to examine

the ways in which they might, or more to the point, might not work in practice. What do the words really mean? How will the regulations really work? Will they deliver better construction health and safety than the past two sets of CDM Regulations, or are we going round the houses to deal with what are essentially 'political' concerns? Will these new regulations seriously tackle the reduction of construction related ill-health, and will they deliver the step change that the APS has been calling so long for?

We will also have to see how the new Principal Designer will be required to discharge their new duties. Will they be able to call on another construction professional for assistance or to undertake their health and safety coordination duties if they do not themselves have sufficient skill knowledge and ability?

An initial reading of the proposed CDM 201x Regulations would suggest that 'Principal Designer' is just another name for the CDM Co-ordinator, but appointed at an earlier stage than Clients currently tend to do. If so, and it works, then this might be a good move. Early appointment of a health and safety co-ordinator (think CDM Consultant) has always been a problem area for the industry as well as the HSE. Clients do not see the benefit of appointing a CDM Consultant early as they think it is going to cost them money and "we don't really need one do we?".

As always, the devil is in the detail. For example, the HSE's Regulatory Impact Assessment states that there will be savings to businesses (undertaking projects of over £200k value) of £30m per year, from the efficiencies generated by the removal of the CDM Co-ordinator role. But does this account for the cost of increased fees by Designers taking on and undertaking the Principal Designer role? If not, then has the HSE made an error because additional duties and responsibilities lead to costs as increased work and liability have to be dealt with somehow.

Putting the cost implications of additional duties aside, will designers have the commitment to focus on health and safety aspects of the design process when they have so many other pressures and issues to consider? Will an architect give the 'boring' health and safety co-ordination issues the same attention as the aesthetic, sustainability, cost and quality aspects of a design?

The HSE also believe that the simplification of the structure and language of the Regulations will lead them to be more easily accessible to smaller businesses. This is good news as most problems occur on smaller to medium sized projects. Personal knowledge of talking to architects on a regular basis as the RIBA Specialist Practice Adviser on CDM issues, leads me to think that many will not even look at a copy of the new regulations, or the guidance produced, as some still do not know what a CDM Co-ordinator does or what their own duties as a Designer are – and CDM has been around for 19 years now.

The HSE goes on to state that removal of the explicit requirements for competence from the Regulations could potentially lead to substantial savings over time, especially to small businesses. This is more worrying as competence and capability continues to be one of the major concerns of the industry and the cause of so many accidents and ill-health in construction. The HSE will have to demonstrate exactly how they see the competence of duty holders being maintained, if not increased, by the removal of explicit requirements. Stating that 'the industry will deal with it' is just not good enough. Whilst Safety Schemes in Procurement (SSIP) and PAS91 pre-qualification processes are undoubtedly the way to go with corporate competence, they do not cover standards and requirements for individual competence. Individual competence will only be increased or maintained for construction professionals and others if their governing membership bodies determine that health and safety competence is something worth pursuing and demanding of their members.

One change to the CDM Regulations that has to be implemented is to do with the application of the regulations on projects where there is going to be more than one contractor on site. The under-pinning European Directive states that all projects, where there is more than one contractor on site, must have someone to co-ordinate the health and safety of the

project. This means that the requirement to appoint a health and safety co-ordinator will have to start applying to domestic projects. The HSE seem to have done a rather cute 'side-step' here. They have said that if a client is a domestic client, then the client duties will be carried out by the contractor or principal contractor, depending on the number of contractors on site.

Putting aside any issues about retention of the CDM Co-ordinator role and the name change to Principal Designer, if people in the industry who work with CDM day-in day-out believe CDM2007 isn't broken and only needs tweaking to avoid under-implementation of the European Directive, why do government and the HSE think the only solution is wholesale change to a system that over the past 7 years has put Britain at the top of the league in construction health and safety performance? With little or no time for the HSE to consider the Consultation responses and make any changes to their proposals if they are to be brought into force in April 2015, a cynic might suggest that it doesn't really matter what the consultation responses say as they are going to "publish and be damned".

The questions are many – the time to consider, and respond adequately, very short. But consider and respond we must, for, as has been said many times before, the industry has to get CDM right this time around. ■

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Health and safety training provision

Over 25 years providing effective and efficient health and safety advice and training to the construction industry and others...

Callsafe Services Limited has been providing health and safety advice, assistance and training to our clients, and our clients' projects, since 1987. Our clients have included many central and local government organisations, and private industry clients, designers and contractors.

Consultancy

Our consultants consistently ensure effective communications on projects and within health and safety management systems, with the minimum amount of paperwork produced, continuously questioning why a document is required and whether it is any use in effective management.

We have provided client organisations, architects, design consultancies and contractors with policies and procedures for compliance with British health and safety law, particularly the Construction (Design and Management) Regulations (CDM); including non-British organisations.

The policies and procedures developed by Callsafe Services Limited are effective in terms of protecting the health and safety of people, protecting the organisation from prosecution and loss of reputation, and the costs of implementation and maintenance.

Callsafe Services Limited have also developed the health and safety management procedures, health and safety rules and training toolbox talks for the Estates Departments of NHS Trusts.

Due to the breadth and depth of experience and knowledge of our consultants, we are the primary source of advice on health and safety law and its practical application for many organisations; particularly since the removal of the HSE Infoline service.

Training

The training provided by Callsafe Services Limited includes a focus on effective communication and management, rather than just the production of documentation, enabling us to provide a tailor-made service.

Training provided is made as appropriate and relevant to our trainees, incorporating client procedures and processes where possible.

We primarily supply training in-house, where the trainer travels to our client locations. In-house courses also allow the training to be tailored to the particular work types performed by the delegates and may

include our client's specific procedures and examples.

Accredited training is also available as in-house courses and occasionally and public courses. Callsafe Services Limited provides courses accredited by:

- Institute of Occupational Safety and Health (IOSH)
- Chartered Institute of Environmental Health (CIEH)
- Association for Project Safety (APS)
- Safety Pass Alliance (SPA)

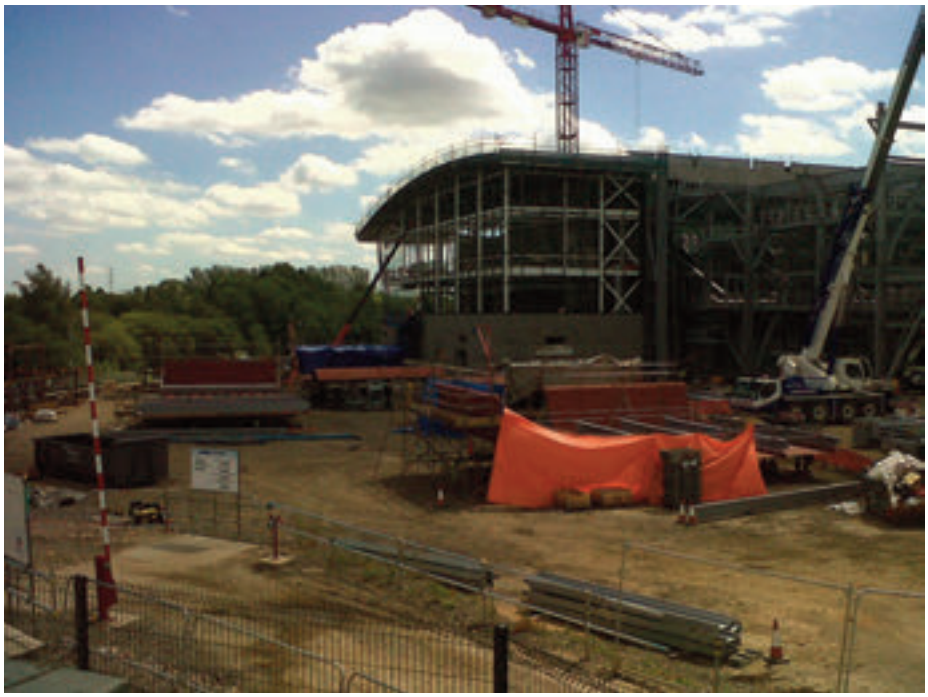
The current accredited courses are:

- IOSH Managing Safely in Construction
- IOSH Management of the Construction Design Process in the Republic of Ireland
- IOSH Safety for Senior Executives
- CIEH Level 3 Award in Health and Safety in the Workplace
- APS Design Risk Management
- SPA Passport – Core

Callsafe Services Limited is also the sole supplier of health and safety training to Thomas Telford Limited, the training arm of the Institution of Civil Engineers (ICE), who supply public and in-house training courses.

Our trainers are experienced construction health and safety professionals, with construction engineering backgrounds, so enabling them to provide examples of how the legislation can be implemented for particular scenarios.

The course programmes available can be viewed at: http://www.callsafe-services.co.uk/training/. These programmes can be adapted to the particular needs of an organisation.



CDM Co-ordinator (CDMC)

Callsafe Services Limited are a Registered CDM Co-ordinator Practice with the Association for Project Safety (APS), so can demonstrate our commitment to continuous improvement of our, our clients' and our projects' processes.

Our consultants/trainers are all practicing health and safety professionals working within the construction industry, and have extensive experience as health and safety advisors/officer/managers for client, designer and contractor organisations.

Our clients include the Environment Agency and Veolia Environmental Services (UK) plc.

If you need an organisation that understands the requirements of CDM, projects, other health and safety requirements, and how these requirements can be achieved in a cost-effective way, to act as your CDMC, provide health and safety advice and assistance and/or provide effective training; please contact Callsafe Services Limited to discuss your requirements.

Public courses currently programmed for Spring/Summer 2014 are:

APS Design Risk Management – Midlands – 8th and 9th May 2014.

IOSH Managing Safely in Construction – Midlands – 3rd, 4th, 5th, 18th and 19th June 2014.

H&S MANAGEMENT TRAINING CDM CO-ORDINATION
CS
CALLSAFE SERVICES LIMITED

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Clients under pressure: CDM201X?

Following on from the proposed changes to the CDM Regulations from the HSE, David Carr, MD of Callsafe Services Ltd examines whether the client is more likely to be prosecuted under the new regime...

The gun has been fired, and we are now all in the race to see if we can get the Health and Safety Executive (HSE) to address the concerns of construction health and safety professionals regarding the proposed changes to the Construction (Design and Management) Regulations (CDM). The consultation period is to be for 10 weeks, commencing on 31 March 2014.

It would be pertinent to question the HSE as to why it took them 2 years to produce the consultative document, but they are only allowing the industry 10 weeks to understand their proposals and respond with reasonable concerns.

Only 10 weeks for the consultation process?

As stated by James Ritchie of the Association for Project Safety (APS) in his article, one of the most significant proposals for the new regulations is the replacement of the CDM Coordinator (CDMC) with the Principal Designer.

CDMCs currently have 2 fundamental elements to their duties:

- To advise and assist the client; and
- To ensure the design and the Designers are compliant.

It is proposed that the Principal Designer will perform the second of these duties, but has no duty to advise and assist the client in the performance of the client's duties, except for the identification of Pre-Construction Information, that the client still will be required to provide.

The client is proposed to still have a duty to ensure the effective health and safety management of the project, as below:

Client duties for managing projects

5(1) A client must make arrangements for managing a project (including the allocation of sufficient time and other resources) that are suitable for persons with a duty under these Regulations to ensure that:

(a) construction work is carried out so far as is reasonably practicable without risk to the health and safety of any person;

and

5(3) A client must take reasonable steps to ensure that the arrangements referred to in paragraph (1) are maintained and reviewed throughout the project.

and

5(4) A client must ensure that:

(a) the principal designer complies with the duties in regulation 9;

(b) the principal contractor complies with the duties in regulations 12 and 13;

(c) before the construction phase begins:

(i) if there is more than one contractor, the principal contractor, or

(ii) if there is only one contractor, the contractor draws up a construction phase plan.

This should be of major concern to clients, particularly those who are not experienced in construction, as they will still have the duties that they have under CDM2007, but without any legally designated advice and assistance.

Will anyone provide the client with independent advice and assistance?

Other client's duties are contained within the proposed regulations, but are not included here as they are considered to be generally reasonable for the client to perform without any specific advice and assistance, or are included in the duties of the proposed Principal Designer.

If a client organisation has its own in-house expertise on construction health and safety management and standards, they should have the necessary competence to perform the duties of a client without any external assistance, but this is not the case with the majority of construction clients.

Some questions that could be relevant to any client considering the commissioning of a construction project and the performance of the client's duties without professional advice and assistance; are as follows:

- Would the client understand whether the Designers and the Principal Designer are properly coordinating their designs to avoid design clashes and interface issues, particularly if a number of different design organisations are involved and possibly not contractually related?

- Does the client have the ability to question the Designers and the Principal Designer as to whether they have applied the 'General principles of prevention' in their designs? Are the designs incorporating current standards, materials, equipment and processes to eliminate and reduce risks by their design decisions, or have the decisions been based purely on previous projects, and therefore outdated knowledge?

- Will the client be knowledgeable in discussions with the Principal Designer on what should be provided as part of the Pre-Construction Information?

- Does the client have persons within their organisation who can assess the effectiveness of the management arrangements and systems of work to be employed by the Principal Contractor and Contractors?

- Would the client recognise an effective and efficient Construction Phase Plan? It is noted that the client is only required to make sure that there is a Construction Phase Plan prior to construction commencement, but it should contain the health and safety management arrangements for the construction site.

- Will the client be willing and able to specify or review the proposals of the Principal Designer for the content, format, copies and delivery of the Health and Safety File?

If any of the above questions result in a negative response, the client should seriously consider engaging someone to assist them with the performance of the client's duties. This assistance is currently supplied by the CDMC.

Effective CDMCs are seen as the 'client's best friend', providing independent advice on competence, pre-construction information, time, resources, the effectiveness of the management arrangements, reviewing the construction phase plan prior to advising the client of its sufficiency to commence construction, and compiling a health and safety file that is appropriate to the client's needs.

Will the project costs be reduced?

Within the consultative document, CD261, the HSE have stated that the costs to projects with an overall value in excess of £20K, will be reduced by an estimated £30M per annum by removing the CDMC. Is this a balanced view?

If the client is going to engage a construction health and safety advisor to assist them with the client's duties there will be an obvious cost associated with this.

The HSE have stated that the cost reduction will be due to the Principal Designer performing the duties as part of their designers' duties; which I would dispute. It is necessary for designers to be paid for their efforts, so if they are to perform the duties of a Principal Designer they will need to be paid for this also. It is possible, or even likely, that the costs may increase as a result of the deletion of the CDMC's duties.

Will the client be more likely to be prosecuted?

Without professional advice and assistance in the performance of the client's duties it is probable that the number of client prosecutions will increase.

More importantly, there are grave concerns for the effective management of health and safety on construction projects, potentially causing more deaths, injuries and ill-health than would have happened without these changes.

The consultative document, CD261, Consultation on replacement of the Construction (Design and Management) Regulations 2007, and the Online Questionnaire and the Reply Form, can be found at:

www.hse.gov.uk/consult/condocs/cd261.htm.

Please respond to this consultation, or we will definitely get what has been proposed! ■

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The CDM-C route to added value

John Lacey, Past President of IOSH describes how CDM Regulations are meant to operate, and what qualities a CDM-C should possess...

Biography

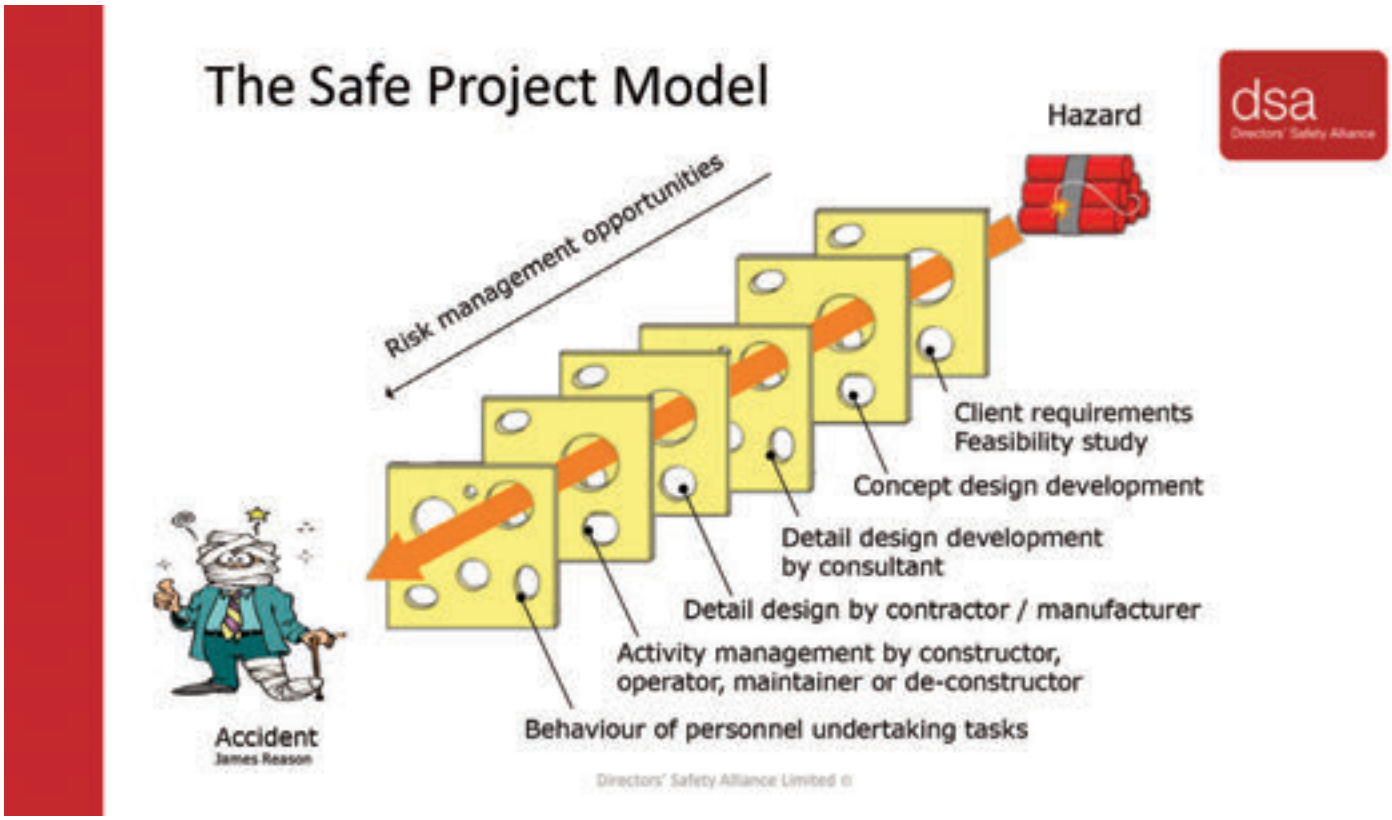
The author of this article, John Lacey, has been working in Occupational Health and Safety for the past 42 years. Working within the construction environment for the last 38 years, his career has seen many changes, both in safe construction processes and in the various facets and professions of the industry as a whole. John has been well placed to view how changes in legislation, and in particular, how industry practices have improved over this period.

A past President of the Institution of Occupational Safety and Health (IOSH) and Chairman of its Construction Group for many years, he has been closely involved with Construction Regulation and in particular the Construction Design and Management Regulations (CDM) since their introduction in 1994/5, and more recently their review and reintroduction in 2007. Continuing to be involved, John is working with the most recent review of CDM 2007 liaising with members of CONIAC, providing advice and guidance. A Chartered Fellow of IOSH and Hon. Fellow of APS, John is the CEO of Lincsafe (Health and Safety) Ltd and MD of the Directors Safety Alliance. He has worked as a CDM-Co-ordinator on a variety of major projects since the introduction of CDM.

The 6 European Directives introduced in 1992 created a major change in industry as a whole, and not only the construction industry. The foundation of 'risk based' safety was new to industry, although construction engineering had been using risk calculations for years. The fragmentation of the industry during the 1970's from main contractors employing their own staff to management contractors using sub-contract labour had created a divided situation. Sub-contractors were expected to solve the problems created by clients, designers and main contractors. With legal contracts making it quite clear who was financially liable to foot the bill should things go behind schedule; let alone safety issues.

With the introduction of Construction Design Management (CDM) in 1994/5, (amended in 2001 owing to a challenge in court against the details of the Regulations), the contracting world changed. 'Principal Contractors' (main contractors) now had a duty to ensure health and safety was part and parcel of the whole contract, and they would be held responsible should this not happen. This in itself brought about a major change to safety standards at the sharp end, with incident and fatality rates falling within the industry. Changes to pre-project design safety was not so eager to follow suit.

The introduction of key duty holders, with clearly defined roles and responsibilities, including 'Planning Supervisors' (PS) whose job it was to ensure health and safety was taken into consideration at the design and planning stages of a project. Clients and designers also had duties to consider health and safety within their own areas of the projects feasibility and design. The PS had a duty to liaise with both clients and designers. In some cases it worked, but in the majority of projects, their role in reality was more of a clerical nature and added little or no health and safety value to the project.



*Amended James Reasons model to show where intervention is needed at the earliest stage possible to avert issues from occurring as the project develops.

An opportunity of change – 2007

The review of the 1994/2001 CDM Regulations saw a chance to correct the shortfalls. A change of title from Planning Supervisor to CDM-Co-ordinator actually defined what the duty required. Designers were made more accountable along with clients. The inclusion of health and safety at the construction workplace within the Regulations also ensured that clients and designers had no excuse to not take such things into account when looking at the project at the early stages.

The Co-ordinator, who should be appointed at the very early stages of the project (feasibility/design), is the ideal person to guide both client and designer in considering good safe practice from the projects inception. By early appointment of a 'competent' CDM-C the bureaucracy that often resulted previously, can be avoided.

Designers have a clear duty under the Regulations to ensure the client is aware of their duties. In addition, the designer shall not undertake design until a CDM-C is appointed (where the project will be notifiable*). Far too many designers have failed to comply with this requirement, and continue to do so.

Who should the CDM-C be?

When formulating the 2007 Regulations, the Health and Safety Executive (HSE) included a guide to what level of qualifications/competencies people should be expected to look for when appointing and/or dealing with duty holders throughout the project (Appendix 4). Although a good idea, in some instances this was, and has been taken too literally, and created a mountain of bureaucracy. A number of competency schemes also created even more bureaucracy which did not help the situation. A system of mutual recognition by the major schemes has reduced some replication (SSIP).

The Regulations have been successful where clients have engaged with organisations and/or individuals who, by their demonstrable track record are shown to be competent, professional, and above all 'team players'. This applies to all the duty holders but in particular the CDM-C.

A good CDM-C will be an integral part of the project support team, not a remotely functioning organisation or individual ticking boxes. Knowledge of the design process is essential, and what is needed to ensure compliance is just a part of the function. They also need understanding of the 'drivers' and 'barriers' of the project from all aspects, and in particular being fully conversant with the culture of the organisation they are dealing with to be enablers of change. And, they should challenge where necessary the status quo, through good leadership techniques to create the positive movement for good practical health and safety to be embedded within both design and construction.

"The Co-ordinator, who should be appointed at the very early stages of the project (feasibility / design), is the ideal person to guide both client and designer in considering good safe practice from the projects inception."

To be involved at all the stages of the project from feasibility to completion, allows hazards to be identified and addressed. Only those with a clear understanding of the process will add the value that is needed. (*See the modified James Reasons image.)

Legal Compliance: Good practice = good outcomes

In defence of those who have seen CDM as a bureaucratic waste of time, some elements have totally swamped projects with paper systems which add no health and safety or other value. The problem is that should an issue occur unless there is evidence, you have no defence.

The professional will have evidence but only that which shows that good industry/legal practice was followed by clear examples, not mountains of paper and tick boxes.

The appointment of a competent CDM-C onto the team at an early stage is to everybody's benefit. By being part of the group looking at benefits for clients, constructors, users and maintainers, true value will be added to all projects. A clear line of risk based judgements will also be available should they ever need to be demonstrated. ■

With a review of CDM 2007 underway at the time of writing this article, it is expected the role of CDM-C will be removed, and co-ordination placed in the hands of the 'Designer' to co-ordinate pre-construction activities. The PC will be responsible for co-ordination of the construction phase of a project. This will add a totally different dimension to how risk management will be managed.

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CONSTRUCTION INDUSTRY PUBLICATIONS

Part M – a duty to equality

Huw Evans, author of the 'Guide to the Building Regulations' examines whether the Approved Document M (AD M) is enough to comply with The Equality Act 2010...

The 2013 edition of Approved Document M (AD M), which came into use on 6 April, does not introduce major changes in guidance, rather it addresses changes in other parts of Building Regulations and legislation, revises guidance on access statements and reflects changes in standards and other guidance.

The Equality Act 2010

The Equality Act 2010 harmonised and strengthened the provisions of previous equalities legislation, including the now repealed Disability Discrimination Act (DDA) 1995. The Equality Act imposes a duty to make reasonable adjustments to a physical feature which might put a disabled person at a substantial disadvantage to a non-disabled person. That duty is similar, but not identical, to the DDA's test of a physical feature which made it unreasonably difficult or impossible for disabled people to use a building's facilities. There is still a 10 year exemption for features which complied with the version of AD M in force at the time of construction.

However, following the guidance in AD M will not necessarily be sufficient to comply with the Equality Act, as it may require adjustments which are outside the scope of Part M.

Access strategies

Access Statements were originally introduced to improve communication between applicants and building control bodies (BCBs), by explaining how the proposed building work was to meet the requirements of Part M. However, research carried out as part of the consultation on the Building Regulations revealed doubts about the usefulness of Access Statements, which were frequently perceived as being problematic for designers and unhelpful for BCBs.

As a result, AD M no longer requires the production of a written Access Statement, but recommends applicants engage with the BCB at the earliest possible stage, to communicate how the chosen approach is going to meet the accessibility needs of end users. Together they can agree an Access Strategy which identifies and addresses key risks and issues for the proposed building work, focusing on those areas where proposals diverge from the Approved Document.

On smaller works, it may be sufficient to have a conversation reviewing the proposals, which is then recorded by correspondence. Larger projects, particularly those involving complex work to existing buildings, are more likely to require a written document which sets out the key aspects of the design approach to accessibility, supported by annotated drawings, with face-to-face meetings to resolve key issues.

It remains the responsibility of the applicant to demonstrate the solutions are appropriate.

Interactions with Parts K and N

One aim of the 2013 revision to the Building Regulations was to remove inconsistencies and overlapping guidance. To that end, Part N (Glazing) has been deleted and its requirements transferred to Part K (Protection from falling, collision and impact). The Approved Document to Part K (AD K) has been expanded and re-written following 'plain English' principles. Guidance in AD M on matters

covered by Part K (internal stairs and ramps, manifestation, vision panels and hazards on access routes) has been transferred to the new AD K. Approved Document M now simply refers to the appropriate sections of AD K.

The main changes are:

Stairs within buildings share a common classification across AD K and AD M. A general access stair is intended for all users of a building on a day-to-day basis, while a utility stair is used for purposes such as escape or maintenance access, but not as a usual route between levels.

Guidance for stairs and ramps within buildings are now addressed in AD K sections 1 and 2. The guidance on internal stairs in AD M has been replaced with cross references to AD K at paragraphs 3.51, 3.53, 7.7 and 9.5. However, guidance on stairs and ramps on access routes to buildings is still in AD M (paragraphs 1.19–1.26 and 1.27–1.33). That guidance does not conflict with AD K, but is, at points, more onerous.

Handrails should now have a radius of 32–50 mm (previously 40-45 mm), or, if not circular, be 50 mm wide and 39 mm deep with minimum radius of 15 mm. For internal stairs and ramps those dimensions are given in AD K, while for stairs and ramps giving access to buildings the revised measurements are in AD M at paragraph 1.37h and revised Diagram 7.

The common stairs in a block of flats with no lift must be a general access stair. Where a lift is provided then there should be, as a minimum, a utility stair suitable for those with impaired sight.

Guidance on manifestation of glazed doors and partitions is unchanged, but is now in AD K section 7. AD M now refers to AD K at paragraphs 2.24, 3.10i, 3.14l.

Guidance on vision panels in doors is now in AD K section 10. AD M now refers to AD K (e.g. at 2.13c).

The guarding and marking of hazards on access routes is now covered by references to AD K sections 6 and 10.

The minimum height at which soffits of internal stairs and ramps must be guarded has been reduced from 2.1 m above floor level (AD M 2004 3.51 and 3.53) to 2.0 m above floor level (AD K paragraphs 1.8 and 2.7).

Minor revisions

There have been 3 other minor revisions to Approved Document M:

Changing Places Toilets provide facilities for people with profound and multiple learning disabilities or serious impairments such as spinal injuries or acquired brain injury. The government considered the introduction of a requirement to provide Changing Places Toilets in certain buildings, in order to improve patchy provision, but concluded that currently, a non-regulatory, collaborative approach was preferable. However, AD M has been revised (at paragraph 5.6) to refer to guidance developed by the Changing Places Campaign (www.changing-places.org) and to BS 8300 section 12.7 and Annex G.

The force limit for manual operation of doors has been revised in line with BS 8300: the force at the leading edge should now not exceed 30 N between 0º (door closed) and 30º, and 22.5 N from 30º to 60º (in AD M 2004 the limit was 20 N).

References to standards have been updated, with BS EN 997 replacing BS 5504-3 and −4 for WC pans. ■

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Designing to help people live with dementia

Building design can help people with dementia to live safer, fuller lives...

Dementia is gaining recognition as a growing concern within our society. Our experience is that a pro-active approach to building design can make a real difference for people living with the disease.

At About Access we worked recently with local authority Adult Social Care professionals to develop a specialist dementia day care centre and memory clinic for the NHS. Such services require all of the partners involved to address some specific requirements, particularly those which arise when a person's impairment is not always visible.

The signs of dementia include memory loss, confusion, mood changes and difficulty with such day-to-day tasks as washing, dressing and cooking. The fact that these impairments are often hidden makes it all the more important to consider some of the less obvious features of building design.

This broad approach was at the forefront of our strategy as we suggested design improvements for the clinic, which was being created within an existing building, to help all users of the facility but particularly people with dementia.

The level of our involvement varies depending on the needs of our client. We identified the existing barriers to access to the building, not all of which was to be developed, and then compared the proposed design with our findings.

We began by analysing the accessibility for people as they arrived from bus stops, car parks and drop-off points, from the public highway and from routes within the site boundary.

Inside, we studied the various designs of WCs, the doors, the floors and the signage. Having looked at how people enter the building and make their way around we then examined how they leave.

Throughout the process we found ourselves giving detailed consideration to the very specific needs of the increasing numbers of people living with dementia.

Good design will incorporate clues as to how a space is used, or a clear reminder about how to complete certain tasks which many people find straightforward.

Lighting and glare leads us to think about the finishes on surfaces and placement of light sources, for ageing eyes need careful consideration – the glare tolerance of someone aged 70 is about one quarter of that of someone aged 20, and a person aged 65 requires two-and-a-half times more contrast than a 20 year old.

A simple example in a residential scenario might be tap design for WCs, where colour and contrast can be used to highlight and hide certain features. In the street, a similar approach can be used to help people with dementia locate and operate such facilities as pay points.

We are applying our experience to new-build and refurbishments for local authorities, health trusts and private companies.

For further information on how About Access can help you and your properties please contact Ian Streets, Managing Director, using the details below.

For further information on dementia you can visit the websites: www.alzheimers.org.uk and www.alzheimersresearchuk.org

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Competency: to train, or not to train?

Graham Warren, Manager at ACAD discusses the focus that is now placed on employers to ensure employees are competent to work with asbestos...

With the publication of the latest Asbestos Code of Practice (ACoP) Managing and Working with Asbestos (L143), a great debate has arisen over the impact of competency.

Although supporting legislation remains relatively unchanged, significant prominence has now been given to the matter of employee competence. The focus is now on employers to illustrate that employees are competent to work with asbestos.

Prior to publication of the latest ACoP, most of the asbestos industry was locked into a cycle of 3 day new operative/supervisor/manager training for new recruits followed by a full day's annual refresher training.

Refresher training should have been based on a Training Needs' Analysis (TNA) – but this was not always the case.

All training courses were certificated, which meant anyone undertaking an audit of a licensed contractor, from client organisation to the Health and Safety Executive (HSE), could simply check the expiry date of an individual's training certificate.

Companies had to go to great lengths to ensure certificates were always available on site, particularly if they were managing lots of jobs at the same time with a flow of operatives between sites depending on workload.

Senior management were also required to validate individual training certificates to help stamp out fraudulent copies.

Do asbestos workers still need annual refresher training with the advent of the new ACoP?

Yes – but the length and method of delivery is now a lot more varied. Length of training depends on the results of the individual's TNA. It is possible the individual may only require a short toolbox talk. As a minimum, this needs to include reviewing where things have gone wrong and sharing good practice.

On the other hand, a particularly poorly performing employee may need re-training on multiple issues almost requiring a repeat of the initial 3 day new operative training.

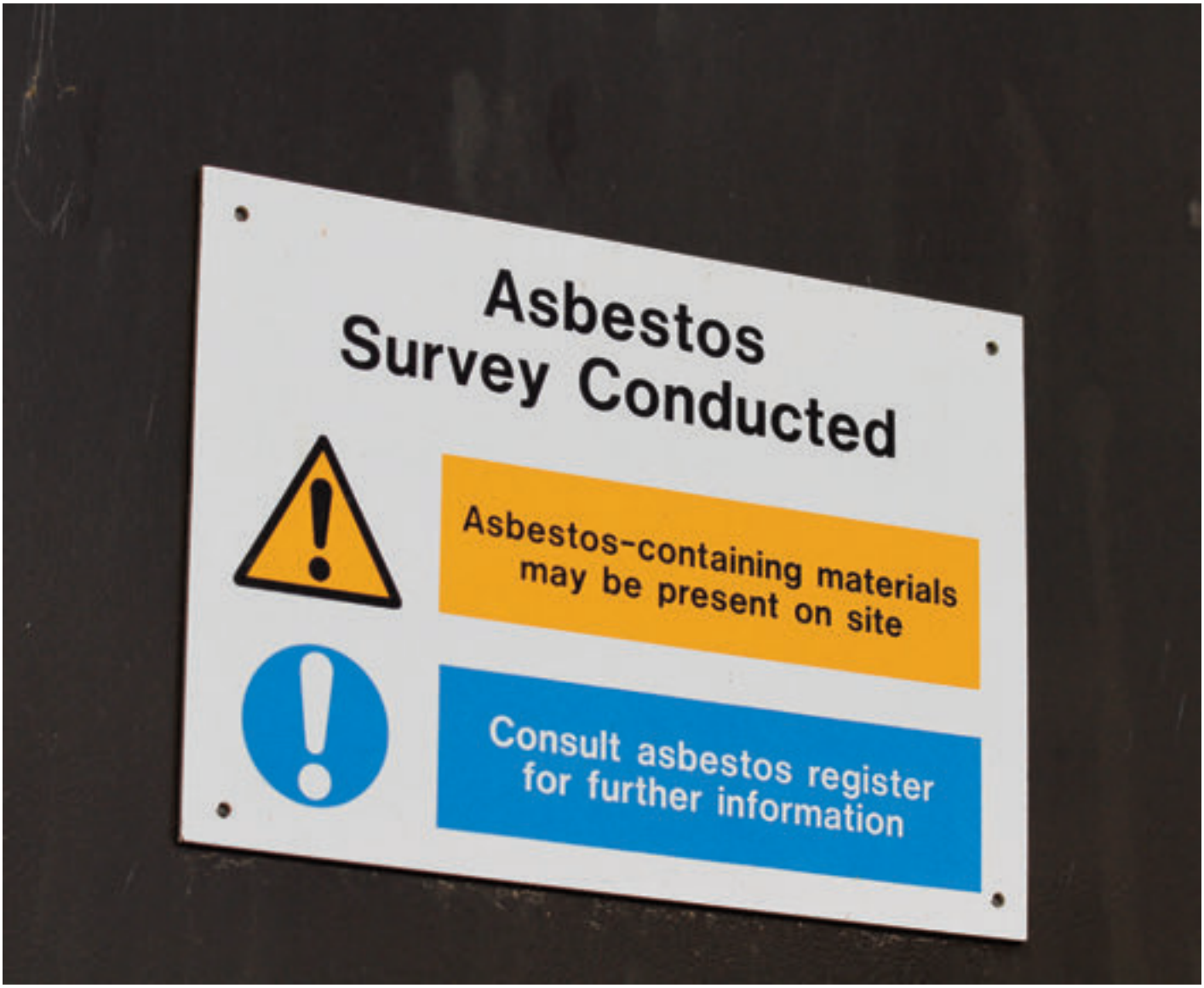
The key message is to maintain an up-to-date TNA on all employees coupled with a minimum standard of annual refresher training. Where work methods, equipment or the type of work change, training is required to address these more immediately than routine annual training.

Companies can conduct this process in house. The possible drawback comes in demonstrating the impartiality in assessments of employees.

ACAD can help by using our A1 assessors to conduct assessments live on site by themselves, or as part of our industry leading site audits.

Another potential drawback is that a company does not assess its employee's competency to a sufficient level.

Fortunately, ACAD and other recognised industry bodies are developing a template for the competency



scheme, which will be applicable to organisations of all sizes.

What should a good audit be looking for on site?

In the short term, it should look for nothing too different to the routine, annual refresher certificates as a transition period is required for the changes.

However, good things to start looking for would be evidence that companies are conducting TNA's of employees and addressing any gaps identified.

Such assessments should also include an assessment of behaviour, as highlighted by RR877 – 'A Commentary on routes to Competence in the Construction Sector'.

Eventually, when an industry-wide approach has been refined, all organisations will go down this route, but any already on the road are doing well. ■

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Asbestos training – the real 'know-how'

Terry Slater, Director of SMH Training & Scientific Services UK LTD highlights the hands-on knowledge of asbestos management that comes from the continuous development of skills...

All workers who carry out work on asbestos-containing materials (ACMs) using control measures and who have specific responsibilities to either site, set-up, operate or maintain industry-specific equipment must demonstrate that they are competent to do so.

What does this mean in practical terms?

New asbestos removal operatives – or those returning to the industry after an absence of over 6 months – are obliged to undertake an accredited course for new operatives, as stated in the Control of Asbestos 2012 (CAR 2012) and Health & Safety Executive (HSE) guidance.

Over the course of 3 days, delegates complete modules covering a range of activities to prepare them for work with licensed asbestos removal and asbestos-containing materials (ACMs). This includes the health hazards of asbestos and the relevant legislation, as well as a range of practical skills, such as enclosure set up, maintenance and dismantling, controlled removal techniques, and clearance air testing. Written and practical elements must be passed in order to complete the course. For example, delegates are required to demonstrate the successful use of a full primary decontamination procedure. However – like the unfortunately-named 'crash' courses in driving – the real learning begins after passing the test.

Continuous development of knowledge, skills and experience

The new operative course is a great foundation for licensed asbestos work, but there are many ways in which individuals can, and should look to develop their knowledge, skills and practical experience:

On-the-job learning

Individual workers can learn a lot from one another – and it is not only new entrants who can learn from more experienced workers. It is important to recognise that the most effective personal development is the kind that comes from the experiences and

challenges which are encountered in everyday work.

Industry updates

There are several bodies active in the asbestos and related industries, such as the HSE, the Asbestos Removal Contractors Association (ARCA), and the Asbestos Control & Abatement Division (ACAD) and they work constantly to improve working practices and procedures, and signing up for regular email newsletters or industry magazines can provide access to the latest thinking.

Product knowledge

It is important to understand the equipment used every day. Speaking to suppliers can help – they are experts on the products they sell, and many can provide useful advice. Often they have product 'champions' or offer specialist demonstrations of their equipment or even training in the best use of it.

Regular formal training

It is mandatory for all workers to complete annual refresher training in order to maintain their licence. This should be treated as an opportunity to improve working practices, focusing on identified gaps in knowledge and designed to avoid skills erosion, particularly with more experienced workers, incorporating bespoke toolbox talks or on-site assessments of real working practices rather than simply repeating the initial training.

Foundation training might leave individuals knowing how to work with asbestos, but continuous learning is what develops true competence, the real know-how. ■

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The hidden killer in UK schools

Julie Winn, Chair of JUAC calls for greater knowledge and management of the asbestos threat within our schools...

Asbestos is a naturally occurring mineral used extensively from the 1800's in public and private buildings, mainly because of its properties in heat resistance and strength.

As we know, breathing in asbestos fibres can cause lung cancer and mesothelioma – a cancer of the lining of the lungs and is invariably fatal, with the diseases not usually appearing until about 40 years after the exposure.

In Britain we have the highest incidence of mesothelioma in the world, and the UK suffers approximately 4,000 deaths per year as a result of past exposure to asbestos – a greater number than deaths each year on the roads.

Asbestos in Schools

Of the 29,000 schools in Britain, it is thought that more than 75% contain asbestos. The Schools Capital Review published in April 2011 stated that "Significant parts of the school estate were and are in an unacceptable state."

According to the Chief Executive of the Government's Partnership for Schools, 80% of the school stock was beyond its shelf life with a Financial Times report quoting Department for Education (DfE) estimates of an £8.5bn backlog of repairs. These figures prove that much of the school stock is in a poor condition and badly maintained, meaning that children and staff maybe exposed to this killer fibre.

The materials of greatest concern are those that readily release asbestos fibres such as asbestos lagging, sprayed asbestos and asbestos insulating board (AIB), all of which are present in schools constructed or refurbished using asbestos containing materials. Asbestos was also sprayed on ceilings and structural beams or used extensively in the walls, ceilings, heating baffles, window and door surrounds, with much of it in locations that are vulnerable to damage by children.

Lack of transparency

The problem of asbestos in schools continues to be played down and parents are often not informed of the presence of asbestos in their children's schools. In addition, many staff in schools have little information about the asbestos in their school.

In the 1980's US Regulations were introduced that required parents and staff to be regularly updated about the measures being taken to manage asbestos in schools. The UK can learn much from this proactive, open and transparent approach.

Children are at more risk

In 2013, the Committee on Carcinogenicity (CoC) confirmed that children are more at risk from the dangers of asbestos than adults as they will live longer for any asbestos disease to develop. The younger the child, the greater the risk, with the lifetime risk of developing mesothelioma for a 5 year old child being about 5 times greater than an adult aged 30.

As the science is incomplete the CoC were unable to conclude whether children are intrinsically more vulnerable because their bodies are still developing. In the absence of knowledge a precautionary approach should be adopted.

Government Policy – cost driven

UK Government policy is that, so long as asbestos is in good condition and is not likely to be disturbed, it is better to manage it for the remaining life of the school rather than remove it. However, this policy can only be effective if there are consistently good standards of asbestos management in schools.

The policy fails to address children's boisterous behaviour, adverse weather conditions and unexpected accidents, which can lead to the release of asbestos fibres. Tests have also shown that asbestos can be disturbed by normal school activity and asbestos fibres can be released over the course of many years without anyone being aware.

Asbestos Management Standards in UK Schools

Although some schools and local authorities have effective systems of asbestos management, many do not, and the management is a continual drain on resources with even the best system of asbestos management open to failure.

In March 2011 the government announced that it would no longer undertake proactive inspections in 'low risk' workplaces. Local authority schools were classified as low risk.

The Health and Safety Executive (HSE) has surveyed a limited number of schools since 2010. HSE Inspections carried out over the last 5 years have found flaws in asbestos management in a number of schools that have required advice, and enforcement action to be taken in almost one quarter of the schools inspected.

A report by the Asbestos Consultants Association, ATAC, concluded that the systems used for asbestos management in many schools are ineffective, and at times dangerous.

The Joint Union Asbestos Committee carried out a nation-wide survey in 2010 of more than 600 school safety representatives. The results showed that that only 28% of respondents said the presence of asbestos-containing materials (ACM) was clearly marked in the workplace. When it comes to keeping an accurate register of where asbestos is, only one third of respondents were aware that a register was kept and only 20% of the total sample confirmed that the register was shown to contractors before they commenced work.

In another JUAC survey in 2013 only 19% of the 1353 responses were confident that asbestos was well managed in their school. Despite this evidence that schools are failing to manage their asbestos properly, the HSE is no longer proactively inspecting schools, and so the true scale of the problem is not known.

Asbestos Training

In the absence of asbestos management training, a person cannot be expected to know how to manage asbestos and consequently, there are wide variations in the standards of asbestos management in schools. Those with day to day responsibility for managing health and safety in schools are often not trained in asbestos management.

A review of senior management of health and safety in schools concluded that "It was not believed that anything other than a mandatory programme will ever sufficiently raise awareness of health and safety in schools for it to become a priority."

In 2013 at an Education Select Committee Enquiry into the role of school governing bodies it was stated: "However, too many governors have not received suitable training and we recommend that the government require all schools to offer training to new governors..."

In October 2013 the DfE published on-line basic asbestos awareness guidance for schools[1]. However, it is not mandatory and has not therefore been effectively cascaded to all those that need to access it.

Of the 1353 responses to the 2013 JUAC survey 97% knew nothing about the DfE online guidance.

Without properly funded mandatory accredited asbestos management training, it is inevitable that there will be a wide range of competency across those expected to be responsible for the management of asbestos in UK schools.

It is important to ensure, through mandatory accredited training, that any staff liable to disturb asbestos in the course of their daily activities has the appropriate awareness training. Such training would play an important role in the prevention of accidental exposure; including by pupils.

Relevant officials in local authorities and school governors, particularly those in academies and free schools, also need to be trained so that they are aware of their legal responsibilities and the level of resources needed to manage the asbestos in their schools.

Asbestos Fibre Levels in UK Schools

Many schools simply do not know the levels of asbestos fibres that people in their buildings are exposed to, making the risk from asbestos in schools unknown.

After an asbestos incident within a school, the HSE apply a Clearance Indicator before allowing reoccupation. This is not intended as a permanent level for asbestos in schools and HSE confirm there is no consensus as to what is a safe level. However, at the Clearance Level a child will inhale 6000 fibres per hour and it takes no account of the increased vulnerability of children.

In 1983 the Department for Education considered a proposal for an 'environmental' limit given that teachers and pupils could be breathing in that level of asbestos for 6 or 7 hours a day. It recommended that, because of the particular vulnerability of children, a level 1/100th of the workplace control levels would not be unreasonable in schools. This environmental level has never been introduced, and instead, workplace control levels are still applied to classrooms.

A system of widespread air sampling in schools should be developed and this would identify those schools and rooms where asbestos fibres are being released. It would also provide updated data on fibre levels in schools so that a more accurate assessment of the risks to staff and pupils could be made. Allowing children to be exposed to 6,000 fibres per hour is morally and socially unacceptable.

Audit of the extent, type and condition of asbestos in UK schools

There has never been a survey of the extent, type of condition of asbestos in UK schools.

Through an ongoing Property Data Survey Programme (PDSP) of schools the government is collecting information about the condition of UK schools to enable proper financial forecasts to be set for future school buildings and their maintenance. Asbestos has inexplicably been excluded from the PDSP.

The PDSP should be extended and information collected about asbestos in schools; otherwise any financial forecast will be meaningless and there will be a complete failure to adequately resource future asbestos management in schools.

HSE proactive inspections would identify those schools that are failing to manage their asbestos and ensure that standards are brought up to an acceptable level. The information collected by HSE would also help to provide wider intelligence about the success of current government policy.

Long term strategy

The only long-term solution to preventing exposure to asbestos in schools is a strategic national plan for the phased removal of asbestos with priority being given to the most dangerous asbestos. Other countries have recognised the problem of asbestos in public buildings and have committed to a long term policy of phased removal. We believe that a phased removal of asbestos from schools should be adopted as national policy in the UK and if this action is not taken, then asbestos will remain a problem in schools indefinitely.

While asbestos remains in situ in UK schools there will be the ever present potential for the asbestos to be disturbed, for the asbestos fibres to be released, for it be a drain on resources as it deteriorates, and for the killer mineral to be inhaled by children and staff.

What lies ahead?

In the light of the statement from the Committee on Carcinogenicity, that states children are relatively more vulnerable to asbestos, the government has issued a public consultation: Department for Education – Review of the Policy for Asbestos Management in Schools.[2]

Whilst we cannot do anything about past exposure, we can take action to prevent any more children and staff being exposed to asbestos and JUAC are committed to working to ensure that the outcome of the Government Review is impartial and brings us a future Asbestos in Schools Policy which really works to prevent future deaths from mesothelioma.

JUAC will be submitting a Response to the Public Consultation calling for change and making the above recommendations. ■

1 http://www.education.gov.uk/schools/adminandfinance/schoolscapital/buildingsanddesign/managementofpremises/b00215518/asbestosmanagementschools

2 https://www.gov.uk/government/consultations/asbestos-management-in-schools-dfe-policy-review

JUAC
Joint Union Asbestos Committee

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Qualifying the Workforce

The National Federation of Demolition Contractors (NFDC) outline the latest on competency throughout the sector, and the role of the Temporary Works Coordinator...

The National Demolition Training Group (NDTG) and NDTG Scotland are now pleased to see competency taking the lead throughout the demolition workforce. With individuals at all levels on site now being given the opportunity to gain nationally recognised qualifications. The demolition industry has come a long way over the last few years.

With National Vocational Qualifications (NVQ's) – Qualifications and Credit Frameworks (QCF's) now firmly in place for the Demolition Topman, Demolition Supervisor, Demolition Manager and the Demolition Plant Operator, we now have robust and recognised competency schemes in place to ensure a fully skilled workforce on our demolition sites across the UK.

"It is essential that those selected to act as TWC are competent with relevant up-to-date formal TWC training in addition to having experience of the relevant types of temporary works and formal academic qualifications to HND level or similar, appropriate to the complexity of the project at hand."

The delivery of the NVQ's is a moving beast with continued standardisation and development taking place amongst the centres by working with the National Specialist Accredited Centre (NSAC). With competency now firmly in place for the roles outlined above, our focus now turns to competency for our demolition asbestos removal operatives. With the NFDC now a key stakeholder within the Asbestos Removal Management Institute (ARMI) and holding positions on many asbestos related committees, the industry is in a prime position to ensure competency amongst our asbestos removal workforce.

ARMI is a joint venture between the 3 main trade associations representing HSE licensed asbestos removal contractors, ARCA (2), ACAD (3) and the NFDC. ARMI has been established as the professional body to recognise and promote effective leadership and management within the asbestos removal management industry. Members of ARMI are recognised as professionals within the asbestos removal management industry and can demonstrate this by the use of letters after their name.

Temporary Works Coordinator or Temporary Works Supervisor?

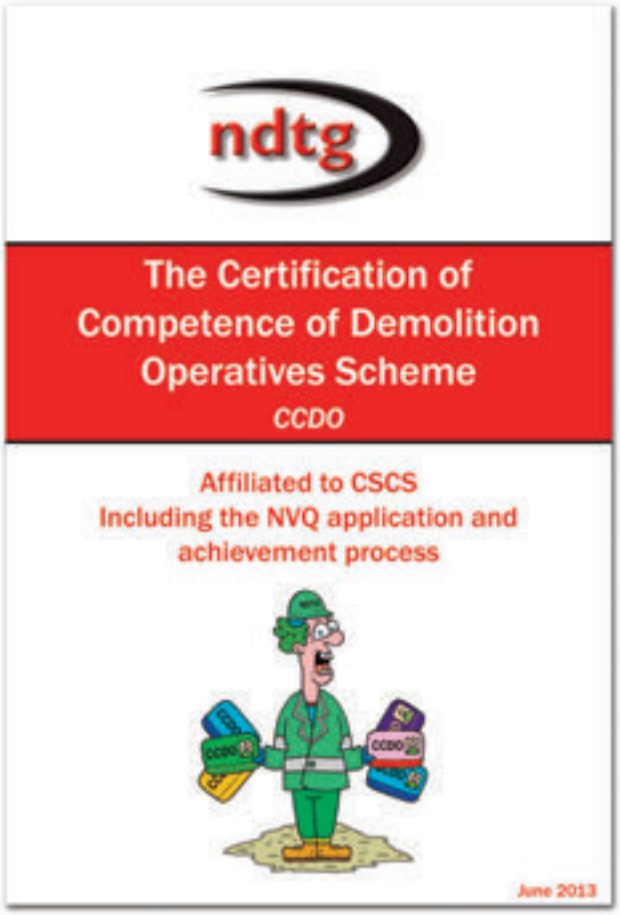
Currently, this is the very question being asked by most demolition companies today. Contractors must be able to demonstrate that they have in place effective arrangements for controlling risks arising from temporary works.

The Temporary Works Coordinator (TWC) is responsible for ensuring that the company's procedures for the control of temporary works are implemented on site. It is essential that those selected to act as TWC are competent with relevant up-to-date formal TWC training in addition to having experience of the relevant types of temporary works and formal academic qualifications to HND level or similar, appropriate to the complexity of the project at hand.

"The delivery of the NVQ's is a moving beast with continued standardisation and development taking place amongst the centres by working with the National Specialist Accredited Centre (NSAC)."

Although not normally the designer, the TWC is responsible for ensuring suitable designs are prepared, checked and implemented on site in accordance with the relevant drawings and specifications. They will create and maintain a register of temporary works for each project and ensure all parties are consulted and informed on changes to make as a project proceeds.

On larger sites, or where a number of sub-contractors are being used, such as scaffolders and steel erectors etc. it is often appropriate to appoint one or more Temporary Works Supervisors (TWS). A TWS is responsible to the TWC and assists them in the day to day supervision of temporary works. Again, it is essential that those selected to act as TWS are competent with formal TWS training, and also having experience of the relevant types of temporary works.



The NDTG has worked alongside several stakeholders and training partners in the development of both TWC and TWS training, and can arrange courses to suit your requirements. ■

For more information about the National Demolition Training Group or any of its courses, please visit www.ndtg.org.

http://www.armi.org.uk/
http://www.arca.org.uk/
http://www.tica-acad.co.uk/page/about-acad

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A celebration of training

Chris Blake, Curriculum Development Manager (Plant) at the CITB's National Construction College highlights the specialist plant training on offer...

It's almost 50 years since CITB first established its direct training provision at Bircham Newton in Norfolk in response to the need in the civil engineering industry for competent plant operatives.

This direct training provision became the National Construction College (NCC) which now offers the widest range of specialist construction plant training from a number of locations nationwide, expanding from our 450 acre site in Norfolk, to NCC Central at Ashbourne in Derbyshire, our state of the art Tunnelling and Underground Academy (TUCA) in Ilford, plant maintenance at Inchinnan in Scotland, and our latest facility in Anglesey to support the nuclear new build programme at Wylfa.

NCC prides itself on delivering outstanding plant operations and plant maintenance teaching and learning, via our industry experienced instructors, using the latest plant and have supported CITB in maintaining its status as an Outstanding Ofsted learning provider.

By taking advantage of NCC's outstanding plant training provision at its specialist centres, you can make sure your plant operatives and mechanics are operating at the top of their game.

You and your operators can gain from:

- Having a work-force with recognised plant qualifications and CPCS competence scheme cards as well as operator best-practice including the potential for saving £000's on your fuel operating costs with our new Eco-operator course;
- Shortest time away from site on short courses for experienced operators;
- State of the art training resources which take care of you whilst training, and on-site facilities which you can enjoy whilst relaxing – our new on-campus accommodation at NCC East – Bircham Newton, offers first class en-suites rooms, together with the restaurant, gym, pool and bar.

Chris Blake
Curriculum Development Manager (Plant)

The NCC Central plant centre at Ashbourne, shares its site with JCB's demonstrations team and delivers training on most categories of plant – with 4 acres, we replicate real on-site working conditions, have a purpose built crane training area enabling lifting of a range of loads- including a "blind lift" with a Slinger / Signaller, and a fork-lift training area equipped with permanent scaffold enabling operators to practice with a variety of loads.

CPCS Advanced tests / CPCS Testers

Due to the expanse of the Bircham and Ashbourne plant training delivery areas and the large range of machines available, up-skilling your existing CPCS testers has never been easier. We can offer monitored assessment, with flexibility on machine brand and machine size (within CPCS requirements).

New for 2014 – CPCS Plant and Vehicle Marshalling

NCC has always been proactive in ensuring all work-forces involved in vehicle movements are skilled to a high level via our own specialist training course, and this will continue within the new CPCS Plant and Vehicle Marshaller category. Facilities and equip-ment are already in place in readiness for delivery to coincide with the new category going live in February 2014. As usual, we can tailor training duration to reflect individuals' experience, but the full duration novice courses comprise two days training with theory and practical assessments on day three. Where companies or individuals have attended our vehicle marshalling course previously, we will be happy to offer advice and guidance on their current skill levels, this will ensure only the necessary time away from site is required to achieve this important new category.

New learner accommodation, Bircham

Managing and co-ordinating plant (MCP)

Managing and coordinating plant should now be at the forefront of all CPCS tester and general plant managers thoughts. Pilot courses are underway and, delivery will continue at pace to serve the industry's needs. Experienced managers who have previously completed the PMSTS course need only complete the new in-depth 2 day MCP refresher, ensuring they are completely up to date on all things plant. Newly appointed managers or those without previous spe-cific plant relevant training will gain vast knowledge in attendance, and successful completion of the full 5 day MCP course. ■

citb
National Construction College

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  – Managing and Co-ordinating Plant
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Tunnelling and Underground Construction Academy (TUCA)
Ilford, London

The right crane for the job

Construction Plant-hire Association's Kevin Minton highlights the importance of tower cranes being suitable for purpose...

Tower cranes are not a "one size fits all " solution, and principal contractors and tower crane suppliers need to communicate to ensure that tower cranes are suitable for their intended use. Accelerated wear and risk of collapse can occur as a result of trying to use a crane for more intensive work than it was intended for.

The design of any crane will be based on its intended usage. A crane which regularly lifts loads, which are at, or close to its maximum, will need to have a more durable structure than one that mostly lifts loads that are well below its maximum capacity. This relationship of average loads to maximum load is called the load spectrum factor. The other factor affecting design life is the number of hoisting cycles anticipated during the life of the crane. A harbour crane carrying out high cycle work loading and unloading ships will carry out many more cycles than a tower or mobile crane on a general construction site, and will consequently be designed with a higher load spectrum factor and greater number of anticipated hoisting cycles.

Most cranes used in construction are designed to meet the requirements of a relevant standard such as those produced by FEM (European Materials Handling Federation), DIN (German National Standard), and more recently CEN (the European standards organisation). These give design engineers parameters for relating the load spectrum factor and number of hoisting cycles to the desired design life for the crane.

A recent position paper from FEM gives some examples of the effect of average load and numbers of load cycles on the expected 20 year design life of tower cranes. FEM give the example that increasing the average hoist load by 25% will halve the expected lifetime. Similarly if the crane was specified for 5 shifts each of 8 hours per week, and in fact is "double shifting" - used for 2 shifts each of 10 hours, 6 days each week, then the life of the crane will be reduced by a factor of 3.

From this it is clear that if a crane is used more intensively than its designer intended, its design life can be significantly reduced which will lead to fatigue cracking of the structure far earlier than expected.

The implications of this start at the planning stage for principal contractors and crane suppliers. If a tower crane is to be used for a high-intensity application, then a suitably sized crane should be specified from the outset. High load, high frequency operations could include skipping concrete, using skips to move spoil, or use on civil engineering sites such as bridges, shafts and tunnels. An intensive use for a mobile crane could be on a dockside loading and unloading an oil rig supply vessel.

In the first instance, the duty to address these issues fall on the principal contractor, but advice from the crane supplier will be needed and it is essential that full consultation and dialogue takes place. PUWER (Provision and Use of Work Equipment Regulations 1998 – HSE) requires that work equipment is suitable for the work, particularly Regulation 4: the LOLER ACOP, says that the selected lifting equipment should not be unduly susceptible to any of the foreseeable failure modes likely to arise in service, for example fracture, wear or fatigue. This applies not only at the start of the work, but must also take into account any changes in usage of the crane during the lifetime of the job.

Metal fatigue is a complex subject and also needs to take into account a number of other factors such as environment. However, when the design life (combination of load spectrum factor and load cycles) is approached, the probability of fatigue cracking starts to increase. These factors are very evident in the difference in design and build of a dockside crane compared to a tower crane on a general construction site. This means that any crane used more intensively than its designer intended will need more frequent thorough examination.

The combination of intensive use and a corrosive environment brings a need for further diligence, as the combined effect of stress and corrosion are generally greater than the effects of stress and corrosion acting separately. As well as more frequent thorough examinations, the examinations themselves may require more frequent application of non-destructive testing (NDT) to detect possible fatigue cracking, and material loss through corrosion.

CPA's Tower Crane Interest Group (TCIG) is working with HSE, inspection bodies and contractors to draft guidance on this subject. The aim is to help principal contractors appreciate the issues, and to allow a well-informed dialogue with tower crane suppliers and thorough examination bodies. The guidance is expected to become available later this year, and will be available from the CPA website. ■

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HSE safety alert – luffing jib cranes in high winds

Following the recent collapses of luffing jib tower cranes in high winds, HSE have issued a safety bulletin to remind duty holders that when tower cranes are left unattended, in the out-of service condition, the cranes must be in free slew with the jib at a safe out-of-service radius.

If luffing jib cranes are left out of service with the slew brake engaged and/or the jib parked at too small a radius, there is a possibility the crane may not be able to weathervane freely in high winds. This could result in very high loadings being placed on the crane with the consequential collapse of the jib or the whole crane. This normally means that luffing jib cranes must be in free slew with the jib at a safe out-of-service radius.

However, there are some occasions where it is desirable to lock the slew out-of-service with the manufacturer's agreement. This requires the manufacturer to check the strength of the tower in this situation and provided recalculated, uprated foundation loads for the base design.

Principal contractors have primary responsibility on site, and they must liaise with subcontractors, crane owners and crane operators to ensure that when left unattended in the out-of service condition, all tower cranes must be configured correctly to withstand wind loadings.

Investigations are still ongoing into recent collapses, and HSE is working with TCIG, CPA and others on ensuring that guidance is up to date and available, and to follow up on other actions that the industry could take.

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- Asset mix – JCB 62% and Others 38%
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Building Regulations

Any person carrying out a building project that aims to create something new, or extend an existing building, has to comply with Building Regulations. The following summarises each regulation and includes a link to each approved document.

Part A – Structural Safety

Part A aims to ensure the integrity and stability of a building: loading, ground movement and disproportionate collapse must be addressed.

Part A covers technical guidance concerned with the requirements in regards to structural safety and incorporating any changes arising as a result of the Building Regulations 2010.

This includes the July 2013 amendments that came into force on 1 October 2013.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/parta/documenta

Part B – Fire Safety volume 1 & 2

This section covers the technical guidance contained in Part B (Approved Document B) of schedule 1 of the Building Regulations concerned with the requirements in respect to fire safety.

Each volume deals with 5 specific areas:

- Means of warning and escape;
- Internal fire spread (linings);
- Internal fire spread (structure);
- External fire spread;
- Access and facilities for fire and rescue services.

Volume 1 – Dwelling Houses

This is the recent edition of Approved Document B – Volume 1: Dwellings. It supersedes the original 2006 edition by incorporating the changes made as a result of the Building Regulations 2010 and Building (Approved Inspectors etc) Regulations 2010. This is Volume 1 of the revised Approved Document B and should be used with Volume 2 for all applications received after 6 April 2007.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partb/bcapproveddocumentsb/bcapproveddocbvol1/

Volume 2 – Buildings other than dwellings

This is the current edition of Approved Document B – Volume 2: Buildings other than dwellings. It incorporates amendments made to reflect any changes arising as a result of the Building Regulations 2010. The changes mainly reflect regulation number changes as a result of re-ordering. There have been no amendments to the substantive requirements in Schedule 1 (ie Parts A to P) of the Building Regulations.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partb/bcapproveddocumentsb/bcapproveddocbvol2/

Part C – Site preparation and resistance to contaminants and moisture

The aim of Part C is to ensure the health and safety of the building's users with regard to the effects of pollution and contaminants. In addition, emphasis is given to resistance to moisture in terms of providing a barrier against ground water and the weather.

This current reprint of Approved Document C – Site preparation and resistance to contaminates and moisture, incorporates amendments made to the 2004 edition. This includes the July 2013 amendments that came into force on 1 October 2013. This reprint further incorporates editorial corrections and amendments.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partc/documentc

Part D – Toxic Substances

Part D examines the potential of cavity wall insulation to release toxic fumes into a building. The Document stipulates that fumes should not penetrate occupied parts of the building, and only where a continuous barrier is used, may potentially dangerous substances be used.

This current edition of Approved Document D (Toxic Substances) has been updated and replaces the previous 2002 edition.

It incorporates amendments made to reflect any changes arising as a result of the Building Regulations 2010. The changes mainly reflect regulation number changes as a result of re-ordering. There have been no amendments to the substantive requirements in Schedule 1 (ie Parts A to P) of the Building Regulations.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partd/approved

Part E – Resistance to the passage of sound

This document deals with 4 major areas including:

- Protection against sound from other parts of the building and adjoining buildings;
- Protection against sound within a dwelling house;
- Reverberation in common internal parts of a residential building;
- Acoustic conditions in schools.

This current edition of Approved Document E – Resistance to the passage of sound, has been updated to incorporate amendments made to reflect any changes arising as a result of the Building Regulations 2010.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/parte/approved

Part F – Ventilation

The Part F document states that ventilation is the removal of 'stale' air from a building and replacement with 'fresh' outside air. This of course assumes that the outside air is of reasonable quality.

The Document states that ventilation is required for one or more of the following purposes:

- Provision of outside air for breathing;
- Dilution and removal of airborne pollutants including odours;
- Control of excess humidity (arising from water vapour in the indoor air);
- Provision of air for fuel-burning appliances (which is covered under Part J of the Building Regulations).

This 2010 edition of Approved Document F – Ventilation has been updated and replaces the previous edition.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partf/approved

Part G – Sanitation, Hot Water Safety and Water Efficiency

New requirements set out within the document include:

- Cold water supply;
- Water efficiency;
- Hot water supply and systems;
- Sanitary conveniences and washing facilities;
- Bathrooms;
- Food preparation areas.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partg/approved

Part H – Drainage and Waste

Part H states that adequate drainage systems must be provided in order to promote both personal and environmental health. Also highlighted, is the importance of a working sewerage infrastructure and maintenance, along with pollution prevention.

There are 6 main sections to Part H:

- Foul water drainage;
- Wastewater treatment systems and cesspools;
- Rainwater drainage;
- Building over sewers;
- Separate systems of drainage;
- Solid waste storage.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/parth/approved

Part J – Heat producing appliances

Part J is concerned with all heat producing appliances that could produce health and safety hazards such as fire, explosion and carbon monoxide poisoning. Appliances such as boilers, room heaters and oil tanks are included, with the addition of liquid fuel storage systems.

There are 6 main sections to these regulations:

- Air supply;
- Discharge of products and combustion;
- Protection of building;
- Provision of information;
- Protection of liquid fuel storage systems;
- Protection against pollution.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partj/approved

Part K – Protection from falling

Part K is concerned with the health and safety aspects of areas such as stairs, ladders and barriers and also addresses the risk from falling. This edition has been updated by combining Approved Document N: Glazing and also some overlapping guidance that is in Approved Document M: Access to and use of buildings respectively.

This document deals with 6 main areas including:

- Stairs, ladders and ramps;
- Protection from falling;
- Vehicle barriers and loading bays;
- Protection against impact with glazing;
- Additional provisions for glazing in buildings other than dwellings;
- Protection against impact from and by trapping doors.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partk/approved

Part L – Conservation of fuel and power

Part L specifically refers to thermal efficiency standards and affects insulation and heat loss, aiming to improve the low-carbon efficiency of buildings. The changes listed in this document for Approved Documents L1A, L1B, L2A, L2B are made to take account of a recast of the European Energy Performance of Buildings Directive (Directive 2010/31/EU).

This document has 4 different parts to it:

- L1A – Conservation of fuel and power (New dwellings)
- L1B – Conservation of fuel and power (Existing dwellings)
- L2A – Conservation of fuel and power (New buildings other than dwellings)
- L2B – Conservation of fuel and power (Existing buildings other than dwellings)

To view all the documents click below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partl/approved

Part M – Access to and Use of Buildings

Part M aims to provide inclusive access to, and circulation within all buildings, giving particular emphasis to the requirements for facilities and disabled people.

It covers 4 main areas:

- Access and use;
- Access to extensions to buildings other than dwellings;
- Sanitary conveniences in extensions to buildings other than dwellings;
- Sanitary conveniences in dwellings.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partm/approved

Part N – Glazing – Safety in relation to impact, opening and cleaning

Part N deals with all aspects of safety relating to glazing, with added requirements related to safe access for cleaning windows aimed to reduce the risk of injury when cleaning glazed surfaces, and the safe opening and closing of windows.

The 4 main areas deal with:

- Protection against impact;
- Manifestation of glazing;
- Safe opening and closing of windows, skylights and ventilators;
- Safe access for cleaning windows etc.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partn/approved

Part P – Electrical safety – Dwellings

Part P aims to reduce the number of domestic accidents, deaths and fires arising from electricity. It is also seen as a way to improve the competence of those undertaking electrical work.

This edition:

- Reduces the range of electrical installation work that is notifiable;
- Installers who are not a registered competent person may now use a competent person to certify work as an alternative to using building control;
- The technical guidance throughout now refers to BS 7671:2008 incorporating Amendment No 1:2011.

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/partp/approved

Building Regulation 7 – Materials and workmanship

This document requires that any building work shall be carried out with proper materials and in a workmanlike manner. It reflects the full implementation of European Regulation 305/2011/EU-CPR covering construction products referred to as the Construction Products Regulation, from 1 July 2013

To view the document – click on the link below

www.planningportal.gov.uk/buildingregulations/approveddocuments/workandmaterials/approved

Index

Suppliers Guide

Our Suppliers Guide contains all key contacts within the planning and building control sector.

The interactive map will take you to the professionals that can satisfy your planning and building control requirements. Divided into regions for ease of use, simply click on the region of interest to view our contacts list. We also provide a national section that covers a wider area.

Covering all sectors from asbestos removal to fire safety, our experts are available to assist with your project.

If you wish to appear in the Suppliers Guide, please contact Glyn Jackson on 01270 502876 or gjackson@adjacentgovernment.co.uk

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