

ADJACENT PLANNING & BUILDING CONTROL TODAY

NORTHERN IRELAND

DEVELOPING PLACES FOR THE FUTURE



IN THIS ISSUE

05 | A PLACE FOR DEVELOPMENT

A key challenge for local councils is to develop joined-up development plans that create high quality spaces and encourage economic investment writes **PLACE**

06 | A LANDSCAPE FOR INVESTMENT

Good landscape design is key to profitable development as **Noel Farrer** of the Landscape Institute explains

09 | THE DISTRICT ENERGY RENAISSANCE

With the uptake of district energy, more urban areas can future-proof energy systems says **Simon Woodward**, Chairman at The UK DEA

Supported by





ISOVER G3 TOUCH
MINERAL WOOL
INSULATION



Looking to Insulate?

Try ISOVER G3 Touch –
High Performance, Soft Touch, Recycled!



Awarded the Highest
Standard for Indoor Air Quality



Our TECHNICAL TEAM
are here to help & advise
1800 744 480
NI Phone
0845 399 0159

ISOVER
SAINT-GOBAIN

Sustainable insulation solutions

www.isover.ie

Editorial Team



Lisa Carnwell



Laura Evans

Production Coordinator

Nick Wilde

Designer

Andrew Bosworth

Sales

Glyn Jackson

The editor does not necessarily agree with or endorse any of the views or contents of the articles and features within this document. All articles and editorials remain the copyright of the authors, organisations and other relevant authorities by whose kind permission they are reproduced. All information has been checked and is correct at the time of going to press. The publisher will not be liable for any loss suffered directly or indirectly as a result of the use of or reliance on the information contained herein.

© Adjacent Digital Politics Ltd 2014

Adjacent Digital Politics Ltd and its suppliers collect and process personal information for the purposes of customer analysis and market research. Our group/affiliate companies may also wish to contact you about our products or services, or the products of carefully selected third parties that we think you may be interested in.



Adjacent Digital Politics Ltd

Datum House
Electra Way
Crewe Business Park
Crewe
Cheshire CW1 6ZF

Registered in England & Wales.
Company Reg No. 8667479.
VAT Registration No. 169 9152 64.

Introduction

Welcome to the 2nd edition of Planning and Building Control Today, Northern Ireland.

We open this edition with an article from PLACE – the Northern Ireland Built Environment Centre who are an independent, not-for-profit organisation dedicated to the making of great places across Northern Ireland. Their article outlines that the key challenge in the coming years for local councils is to develop joined-up and coherent development plans that create high quality spaces and encourage economic investment. This is an incredibly important development that must take place with the transfer of planning powers back to local government in 2015. It is vital that councils recognise that significant opportunities to shape and develop communities will be available and that the decisions made will affect the places in which we want to live.

Local authorities and developers will also be interested in an article from Noel Farrer of the Landscape Institute who argues that by considering effective landscaping within developments, not only are good places delivered, but they are valued and maintained, making them sustainable as well as profitable for all.

David Philp of the UK BIM Task Group also makes a welcome return with an article outlining how BIM can help industry to collaborate and deliver

better outcomes, and the National Federation of Builders comment on their 2014 Contractor Survey Builders revealing an industry increase of readiness for BIM, but also that some barriers to adoption remain. Specific barriers to adoption were identified as: a lack of information available for companies to make an informed decision about BIM; a lack of client of demand; and prohibitively high investment costs.

This edition also turns its attention to the subject of energy efficiency with articles from the Energy Saving Trust discussing the benefits of solid wall insulation, Richard Sharpe of Exeter University warning of the dangers of poor ventilation, and Nick Ralph of MIMA on how to close the performance gap. All quite timely pieces considering we are now in the winter months.

As ever, comments and suggestions for future editions are always welcome, so please get in touch with the editorial team if you have anything to say. ■

PLANNING AND DEVELOPMENT

05

A PLACE for development

A key challenge for local councils is to develop joined-up and coherent development plans that create high quality spaces and encourage economic investment writes **PLACE**

06

A landscape for investment

Good quality landscape design is the key to long-term profitable development as **Noel Farrer**, President, Landscape Institute explains

09

The district energy renaissance

As the uptake of district energy rises, more urban areas can future-proof their energy systems. However, challenges do remain as explained by **Simon Woodward**, Chairman at The UK District Energy Association

11

Mindful BIM collaboration

Collaboration is a key element in the successful execution of a BIM project and can help to share information across teams. **David Philp**, Head of BIM at Mace and the UK BIM Task Group details how BIM can aid collaboration

16

NFB BIM survey reveals barriers to adoption remain

The 2014 Contractor Survey from the **National Federation of Builders** indicates an increase in relation to BIM readiness and use, however a number of barriers still remain which preclude full adoption

BUILDING CONTROL

20

Performance standards to rely on

Paul Wilkins, Chair of the ACAI outlines what standards apply to organisations delivering building control and how these can help the customer

22

CDM2015: The art of selective interpretation

Although reservations remain about the HSE's proposals for CDM2015, it looks like the role of Principal Designer is here to stay. **James Ritchie** of The Association for Project Safety outlines what steps industry should now take

ENERGY EFFICIENCY

26

Energy saving insulation

The **Energy Saving Trust** examine solid wall insulation and what opportunities it has for UK homes along with what households should consider

28

Rising damp: rising allergies

Richard Sharpe, PhD Researcher at the University of Exeter Medical School addresses the concerning rise of allergies caused by damp

32

Designing out the performance gap

The Zero Carbon Hub has recently recommended priority actions for the industry to close the 'performance gap'. Here, **Nick Ralph** from MIMA welcomes the report and draws upon some of MIMA's own work to illustrate its importance

38

Thermal breaks in structural connections

The thermal insulation provided by the building envelope is key to energy efficiency. **Andrew Way**, Manager of Light Gauge Construction and Product Assessment at the SCI outlines how thermal breaks can help

INDEX

Clearbox	13, 14, 15
JCB Finance	25
KNAUF Insulation	31, 35
Saint Gobain Isover	IFC, 36, 37
Schöck Ltd	40, 41, 42
Tekla	18, 19, OBC
The Association of Project Safety	23

A PLACE for development

A key challenge for local councils is to develop joined-up and coherent development plans that create high quality spaces and encourage economic investment writes PLACE...

PLACE was established in 2004 as a not-for-profit multidisciplinary organisation dedicated to the making of great places across Northern Ireland. Focusing on projects across the region, we work with government departments and councils through to community groups and the third sector to encourage greater understanding and participation in the creation of quality urban places.

PLACE Director Michael Corr previously worked as a design advisor with the Mayor of London at City Hall and having already assisted councils in London with the creation of their development plans has the experience to advise the new councils in Northern Ireland.

The key challenge in the coming years for local councils is to develop joined-up and coherent development plans that create high quality spaces and encourage economic investment. Plans should be developed that are specific to their context and not generic. It is a key part of our role at PLACE to help make that happen.

The planning landscape in Northern Ireland is radically changing, with significant opportunities developing to create better places for all communities. Local representatives will have greater say in how their locality develops when planning powers are devolved to 11 new district councils from the Department of the Environment (DoE) in April 2015. However, it will require up-skilling of councillors and local government staff to ensure that the opportunity is fully grasped and the needs of all communities addressed.

PLACE has recently delivered a comprehensive capacity building project on behalf of DoE to introduce

Northern Ireland's first Urban Stewardship & Design guide – Living Places. Living Places is a material consideration in planning applications and encourages everyone to work together to produce more sophisticated and better quality projects. Further training workshops facilitated by PLACE in the new council areas would ensure that Living Places and the reformed planning system becomes an effective tool in determining applications.

The transfer of planning back to local government will not in itself deliver a coherent long-term vision, but it does provide the means by which we can achieve this. Regeneration powers will not transfer to local councils until April 2016. It is vital that councils and central government continue to work closely during 2015 to ensure that planning and regeneration roles are aligned and strategies are developed with the needs of communities carefully considered.

New area and neighbourhood community plans offer huge potential to shape better places across Northern Ireland. It is vital that come 2015, local government is in a position to run with their new functions and the team at PLACE are currently working closely with a number of councils and community groups to help ensure that this happens. ■

For more information on the work of PLACE in Northern Ireland please visit www.placeni.org or email info@placeni.org

.....
PLACE

Tel: 028 9023 2524

info@placeni.org

www.placeni.org

www.twitter.com/placeni



Image: © Terence O'Rourke

A landscape for investment

Good quality landscape design is the key to long-term profitable development as Noel Farrer, President, Landscape Institute explains...

We need 230,000 new homes every year to cope with predicted population growth in the UK. That's more homes than at any time since the post-war building boom. Or to put it another way: by 2050, the population is likely to reach 77 million – meaning to house that number, we need to build for the equivalent of another 11 areas the size of Bristol. With the government putting more pressure on housebuilders than ever to hit the numbers, will it be business-as-usual or will these schemes endure as successful, popular and valuable places to live? We cannot afford for them not to be.

People don't want to live in any old housing. They want to live in housing that offers them a better quality of life, one that makes them feel safe walking to and from work and creates a sense of pride and ownership. This was well understood by those housebuilders behind landmark developments such as Munstead Wood, Letchworth, Span estates, Milton Keynes and Greenwich Millenium Village. All of them are a combination of good-quality housing in verdant, well-designed and constructed landscapes,

because it is the so-called 'spaces between the buildings' that make housing work.

Today, we have other notable examples, but whether they are reverential to these landmark developments or new typologies in themselves, they all aspire to the same maxim: landscape thinking delivers good places – and good places are valued and maintained, which makes them sustainable, as well as profitable for all. We've collected together five of these recent housing projects in a new guide – Profitable Places: Why housebuilders invest in landscape – that aims to show public and private developers how landscape can help them deliver their business goals.

Developed by the Landscape Institute Policy Committee Working Group on Housing, the guide offers housebuilders five ways in which landscape professionals can add value to their developments. These are:

- Investment in a high-quality landscape pays dividends, as customers are willing to pay more for it;

- Good landscape planning helps to make the best use of land, identifying the most sustainable sites for development;
- Well-planned and well-designed green infrastructure creates spaces that deliver more efficient land use;
- Landscape is a cost-effective way to meet the regulations and standards that guide sustainable development, such as Building for Life 12 – all but one of these national standards require a landscape-led approach to achieve a green light;
- Considering landscape from the outset can ensure that new development is more acceptable to existing communities, and will speed up the planning process.

But rather than just have our members tell house-builders how to do it, we started by putting the question to them. We asked senior executives at Berkeley Group, Barratt Developments, Countryside Properties, Homes and Communities Agency, Crest Nicholson, and the Greater London Authority to tell us how landscape adds value to what they do.

The guide includes comment from each of these developers, but one consistent message is that creating sustainable housing developments that pays dividends is not just about creating energy efficient homes. As Chris Tinker, Board Director and Regeneration Chairman at Crest Nicholson says, “We have learnt that to create places where people wish to live, and to add value for the new community, our shareholders and wider society alike, we should invest in the public realm and the natural environment from the outset.”

It will come as no surprise that the most popular developments are frequently the greenest, leafiest ones, with mature trees and well-designed streets. Moreover, leading developers obviously use this to differentiate themselves by featuring these images prominently in their marketing materials. But is this message being understood and acted on all the way down the supply chain and all over the country? No it isn't.

That's why we believe this guide is necessary. As the Farrell Review of Architecture and the Built Environment 2014 pointed out: “Landscape architecture and urban design are often the most valued by the public, yet contradictorily the least valued in terms of fees and frequently where the first savings are made on any given project.”

There is a growing evidence base, of which we highlight a number of key statistics and sources in the guide, that suggest this trend could be hurting rather than helping developers' bottom lines. In its ‘The value of placemaking’ report last year, property consultants Savills showed how investment in the public realm can potentially double average values of flats in parts of London. Defra and Natural England's 2013 report ‘Green infrastructure's contribution to economic growth’ suggests developers already know this, with many of them prepared to pay at least 3% more for land in close proximity to open space, and some putting that premium as high as 15-20%.

But that's if you get to build. The fact is that the public don't like housing developments that detract from, rather than add to, their neighbourhoods. A recent Local Government Association survey found that 61% of councillors in England and Wales said that public opposition is the most significant barrier to housing development. That same survey also provided the solution: asked what would make it more acceptable to the public, 81% of councillors said benefits for the community, such as schools, health services and green spaces.

It is worth mentioning some of the case studies from the guide to illustrate this point. Accordia housing scheme in Cambridge master-planned by landscape architects Grant Associates and architects FCBS incorporates more than three times the amount of green space of other housing developments in the area. Each home was designed to overlook one of these green spaces and each space is linked to the next via a network of footpaths and cycleways, pedestrian-friendly streets and subtle traffic-calming measures that create a safe, 20mph zone. It is a community landscape – and in 2008 it became the first residential scheme to win the RIBA Stirling Prize.



Accordia, Cambridge, Brooklands Avenue, a forest Garden, Grant Associates

Or how about Trumpington Meadows? Landscape architects Terence O'Rourke reconfigured the existing plans for this site to deliver almost twice as many homes as had been previously planned while improving the urban edge and green infrastructure framework. And because the developer was prepared to invest early in a country park, this has ensured that the species-rich meadow, native hedgerow planting, wetland areas and large parkland trees that have been established are likely to increase the value of adjacent housing parcels when they go on the market. Savills currently estimates an average increase of 10% has been achieved.

Existing residents in cities, towns and villages need to believe that new housing will enhance, not diminish, their quality of life and the value of their homes. Meaningful landscapes can increase property prices,



Image: © Robert Taylor

Noel Farrer
President, Landscape Institute, and
Director, Farrer Huxley Associates

but they also add capital and community value by creating socially dynamic spaces. And more often than not, this is the difference between those that endure and those that have to be knocked down and started again.

Profitable places: Why housebuilders invest in landscape is available to download at:

<http://www.landscapeinstitute.org/policy/Housing.php>

Profitable Places will be complemented by a guide on housing and landscape for local authority planners and planning committee members.

**Landscape
Institute**
Inspiring great places

.....
Noel Farrer
President, Landscape Institute, and
Director, Farrer Huxley Associates

Tel: 020 7685 2640

www.landscapeinstitute.co.uk

www.twitter.com/talklandscape



The Energy Centre at Kings Yard on the Olympic site is a District Energy scheme

The district energy renaissance

As the uptake of district energy rises, more urban areas can future-proof their energy systems. However, challenges do remain as explained by Simon Woodward, Chairman at The UK District Energy Association...

District Energy is in renaissance, if you recall the many dozens of networks that used to exist in the 1960's/70's, or if you do not remember those old schemes you will see it as a new solution which is currently bursting onto the UK heating and cooling market as the golden bullet to solve low carbon heat supplies in dense urban areas. Either way, it is a method of delivering low carbon energy which is clearly seeing a considerable increase in uptake in the last two to three years.

However, there are still barriers to implementation which include high initial capital costs, lack of understanding of how to design networks, apart from a few specialists, and almost no fiscal support for the implementation phase.

Fortunately, the situation is changing. As the uptake of district energy (district heating and/or cooling) rises, the market expects installation prices to fall as new entrants move into the industry and increase competition.

There are steps being taken to introduce codes of practice and training and considerable attention is now being drawn to the issue of secondary network losses in new build residential developments. This is particularly a problem where a lack of thought has been put into the design of the heating network from the point it enters the apartment block, up to each dwelling. With unit dwelling annual heating and hot water consumptions in the region of 4,000 kWh or less, the amount of energy lost in transmission of



A relatively simple installation of district heating network in the highway. The pipes have been laid in place and are yet to be jointed

that heat to the dwelling is becoming proportionally higher and a major issue. Consultants are solving this by ventilating risers and even in some cases I have heard of air conditioning being added to overcome the overheating problems resulting from these heat gains. However, in reality sensible network design including routing, levels of insulation and operating temperatures can do much to reduce these losses to acceptable levels, removing these rather cumbersome engineering solutions to a problem which should not exist.

What is certainly true is that once an urban area has a district energy network, it has essentially future proofed its energy system. When the initial source has reached the end of its useful life, e.g. gas fired CHP, then other energy systems such as localised energy from waste, waste heat recovery or other LZC emerging technologies can then be bolted into

this network to effect an “energy generation heart transplant”.

However, the industry still needs support to deliver this expected level of growth. Detailed analysis of every urban area in the UK carried out by the UK District Energy Association demonstrated that it would be realistic to take the percentage of homes connected to a network from 2% to 14% by 2050. This analysis however assumes the implementation of a low carbon heat network incentive sitting alongside the RHI. The government is currently considering a RHI Network Uplift – which is fantastic news – but as many schemes currently being delivered are using gas fired CHP as their initial source, this will not apply, requiring further work.

There has been an impressive number of over 80 local authorities taking up DECC’s Heat Network Delivery Unit (HNDU) funding, to explore the feasibility of a network in their area. However, as the former Head of the HNDU commented at the 2014 UKDEA AGM, the success of the HNDU will not truly be judged by the feasibility funding it has awarded, but by the pipes which are being installed as a result of that funding in four years’ time.

Coupling this HNDU funding with the GLA’s push for heat networks in all new developments across London means that it is clear that the district energy landscape will be very different in 2018 from where it is today, the question is just how different. ■



.....
Simon Woodward
Chairman

The UK District Energy Association
 Tel: 01285 770615
secretary@ukdea.org.uk
www.ukdea.org.uk
www.twitter.com/TheUKDEA

Mindful BIM collaboration

Collaboration is a key element in the successful execution of a BIM project and can help to share information across teams. David Philp, Head of BIM at Mace and the UK BIM Task Group details how BIM can aid collaboration...

Building Information Modelling (BIM) is purported to aid collaborative working. Every conference or symposium marries these two themes together without really unpacking what this relationship looks like. Like BIM, collaboration has different meanings depending on your perspective and what lens you are looking through, indeed the Collins Dictionary defines collaboration as either:

1. The act of working with another or others on a joint project;
2. Something created by working jointly with another or others;
3. The act of cooperating as a traitor.

Most would say that one and two are the most commonly related meanings in the context of our industry, though some I am sure would recognize the third definition as a reality on some projects.

Hopefully we all identify collaboration as a key element in the successful delivery and execution of a project programme and as a lever to help break down silos and successfully share information across teams. The reality, as the author Morten Hansen points out is that “bad collaboration is worse than no collaboration” and that “the goal of collaboration is not collaboration itself, but results.” So how can BIM really help us collaborate and deliver better outcomes?

In this author’s opinion, the main pedal to ensure successful collaboration in a BIM environment is a clear ‘purpose’. High-performing teams are driven by a well-defined purpose (do not confuse this with a

vision statement) and if BIM (Level 2) is good at anything it is; a) lots of new acronyms, but also b) defining clear information requirements at all stages of the asset life-cycle.

Level 2 maturity begins with clearly defining the purposes of the model(s) and their uses. These are referred to as the organisational and asset information requirements and are articulated to the supply chain through an Employer’s Information Requirement (EIR).

Defined information requirements, defined processes (PAS1192-2 and 3) for information delivery and agreed data exchange standards (BS1192-4 COBie) create a strong foundation for collaboration, and when properly worked through with the entire project team, help create unifying goals. The wise client would also do well to additionally invest in BS 11000 Collaborative Business Relationships which defines roles and responsibilities and supports collaborative decision-making.

Level 2 BIM also ensures that collaboration extends beyond delivery, with the requirement for ‘Soft landings’ and the requisite for an operational champion to be involved throughout the plan of work for that project – starting with the end in mind and using the model as a basis to visualise and test the lifecycle solution at pre-construction stage. This is a great win in an industry where there is normally a large chasm between the delivery and operational lifecycles.

BIM is data rich in the context of both geometric and alphanumeric data which can be visualized in a 3D, or indeed an immersive environment. In terms of low hanging fruit, BIM allows all stakeholders in a project



**David Philp MSc BSc FRICS
FCIOB FGBC
Head of BIM at Mace and
Head of UK BIM Task Group**

to clearly understand and explore the project life-cycle – often now assisted by ‘gamification’ methods and augmented reality (AR) techniques. It is essential however that organisations avoid ‘lonely BIM’, where one solitary party sits staring at their exquisite model. Models need to be shared and used as a backdrop for decision making; if you like the modern virtual day camp fire but without marshmallows and bad singing. Projects using BIM should always consider as part of their strategy the creation of physical spaces where collaboration workshops can be undertaken, models reviewed and decisions made with screens such as short throw projectors. These are often referred to as ‘big rooms’ or Computer Assisted Virtual Environments (CAVEs).

It is also critical that rigor be given to managing information flow between the project stakeholders within the context of a common data environment (CDE) as set out in BS 1192:2007. In addition, the collaborative production of architectural, engineering and construction information Code of Practice, which establishes the outline methodologies for setting up the BIM project cannot be ignored. To exploit collaborative working processes, a common methodology for managing the data produced by, and between all parties, must be used. This should include the naming of data as well as a process for exchanging data. This common data environment is a key component of both level 1 and 2 BIM maturity.

Forms of procurement should also be considered as a lever to encourage collaboration. The Government Construction Strategy trialled the use of procurement routes which sought early contractor engagement. The value of this timely appointment should not be underestimated, however, it is essential that this

same strategy be considered in the early engagement of specialist contractors and manufacturers who are key to a joined up data hierarchy. This is as much a cultural change as it is a process change.

Open data standards which allow the transportation of information and support interoperability are also really important to the collaborative investment we need to ensure that everyone can play on a level field, especially SMEs. This is why the development of COBie and IFC are crucial to ensuring the uptake of BIM across the construction community.

We must also consider the danger of information overload in a collaborative network; it is therefore essential that the right amount of information, to the right level of maturity, at the right time, is established. It is crucial therefore that a well thought out Master Information Delivery Plan (MIDP) is established through a collaborative process before the information exchange process begins.

What we must always remember is that construction is a human endeavour and technology is there to support collaboration and not replace it. Indeed, the biggest danger is that we get bogged down in a technical discussion when BIM is a behavioural change programme more than anything else. ■

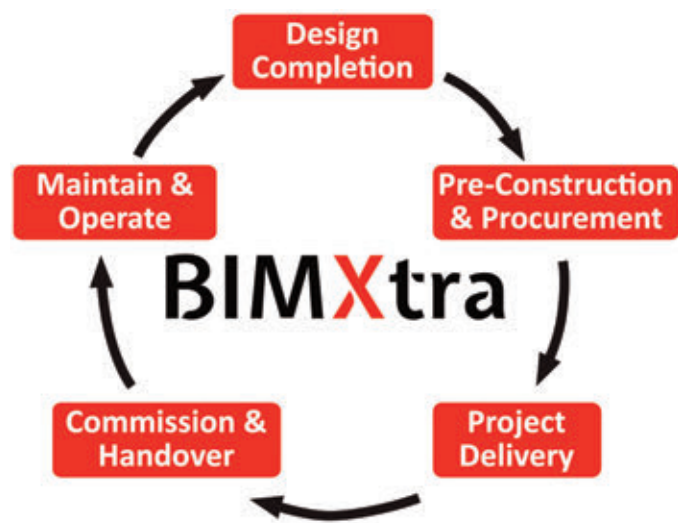
.....
David Philp MSc BSc FRICS FCIOB FGBC
Head of BIM at Mace and
Head of UK BIM Task Group
Mace
Tel:+44 (0) 20 3522 3000
www.macegroup.com
www.twitter.com/MaceGroup

Bringing the simplicity and opportunity of BIM to all

BIM means lots of things to many people and risks being one of the most misused words in construction, however BIM represents the enabler to a transformation that is engulfing not only the UK but also the global design, engineering & construction market; and why, because BIM enables us to work together more easily, in a modern digital environment. Using BIM we are encouraged to share information bringing efficiency and visibility, to ultimately, reduce the risk and cost of our projects. In addition we influence and improve the ongoing operation of our assets, delivering a better more intelligent output for our clients and in doing so providing them with more value in their portfolio of assets.

BIM enables people to interact with their projects in a visual environment, but is increasingly focussing on “the I in BIM”, the INFORMATION, which is held within the modelled objects as data. With modern BIM tools, information previously held in separate and disconnected documents, can be created and held within the modelled objects as the central repository for core project information.

Like the automotive industry before us, the efficiency and simplicity of a managed information process contributed to the renewed success of manufacturing. The effect has been that we buy more cars, appreciate the fact that they are more reliable, last longer and cost less to use and maintain – vehicle manufacturing is in new health.



The expectation is the same for the construction industry, allowing us to define and communicate our requirements better, iron out issues before arrival on site, remove unnecessary waste in the process and provide, for the Client, a better service and an intelligent model that can help better manage the clients asset through its operational lifecycle.

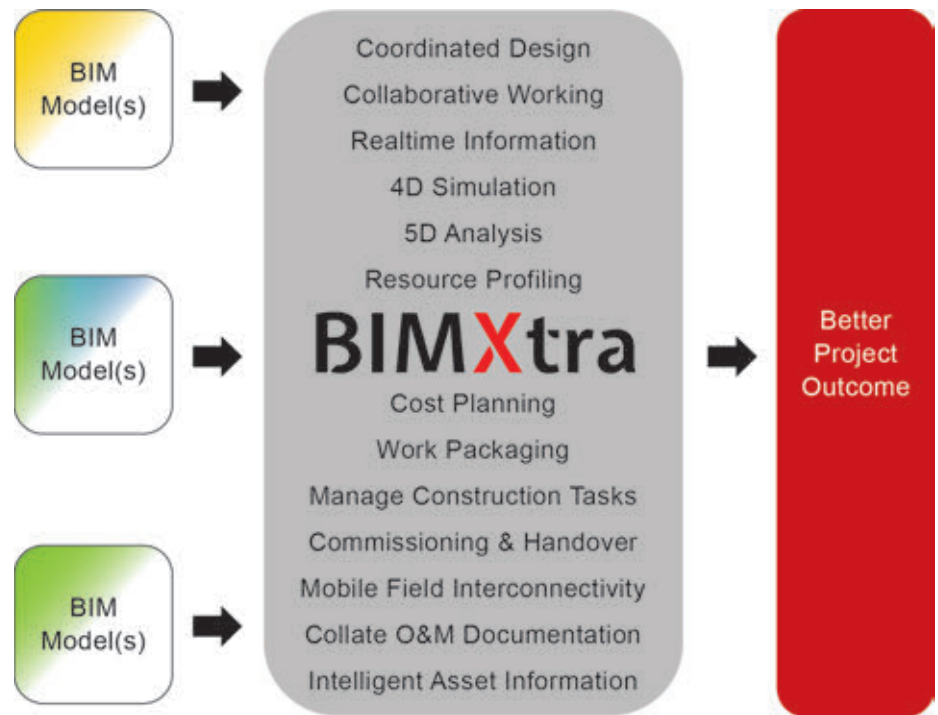
Not surprisingly achieving the utopia from this transformation, like all transformations has its challenges, however, much has been done to address the needs of industry through new technology, and the guidance for the new BIM enabled project delivery process is established in the British Standard and PAS 1192 series, but to maximise the benefits of these new tools we need to consider the working practice changes that are also needed in many environments.

Driven by a focus on low cost procurement that can result in uncertain end out cost and, subject to your position in the supply chain, insufficient consideration of whole life operational cost, together with margins driven ever lower in a highly competitive market we are often faced with risk aversion rather than more proactive risk management.

However, in some parts of our industry suppliers and manufacturers are fully integrated with 3D CAD-CAM tools either direct to manufacture or through the creation of fully coordinated pre-assembled or pre-manufactured modules that dramatically reduce the onsite work and risks in installation and in doing so provide a higher quality product, manufactured and tested in a controlled environment.

The vision of BIM is that all parties in the supply chain collaborate across the same source of information, and make informed decisions based on better information with an improved awareness of the repercussions on others.

BIM delivers the maximum benefit when all parties take part, the leadership of key



Clients like Government, who acknowledge the benefits in project delivery and on-going asset management has been instrumental in establishing BIM as a modern working practice.

The prize for all of us is a better, more efficient, higher quality, world leading industry.

Providing a simple solution to the technology and workflow issues of BIM is where Clearbox can support the process.

Clearbox

Clearbox are a technology provider looking to bring the opportunity of BIM to all through their digital information hub BIMXtra which enables simple access to the information based around a true common data environment. BIMXtra addresses many of the issues of BIM by bridging the gap between the complexity of the BIM authoring tools and the plethora of project tools that characterise the current construction market. BIMXtra not only supports project delivery during the design and construction phase but delivers out the

intelligent asset information at handover to provide a new level of opportunity for Facility Management and Asset Management.

BIMXtra takes information from BIM and makes it available to all in the simplest of approaches. Each user has access to the information they need in the right format at the right time, allowing the influence of BIM to be shared out from the design through the entire project delivery phase. BIM in BIMXtra not only enables interrogation and exploitation of the visuals but also extends and enables the full digital information management of the project.

Developed by individuals with years of experience of delivering design and build projects, and who use BIMXtra tools themselves on their own projects, BIMXtra will help enable consultants, contractors, and SMEs alike to enjoy and benefit from BIM.

So if you are starting your journey or have uncovered some of the complexities of BIM then we can support you to meet the

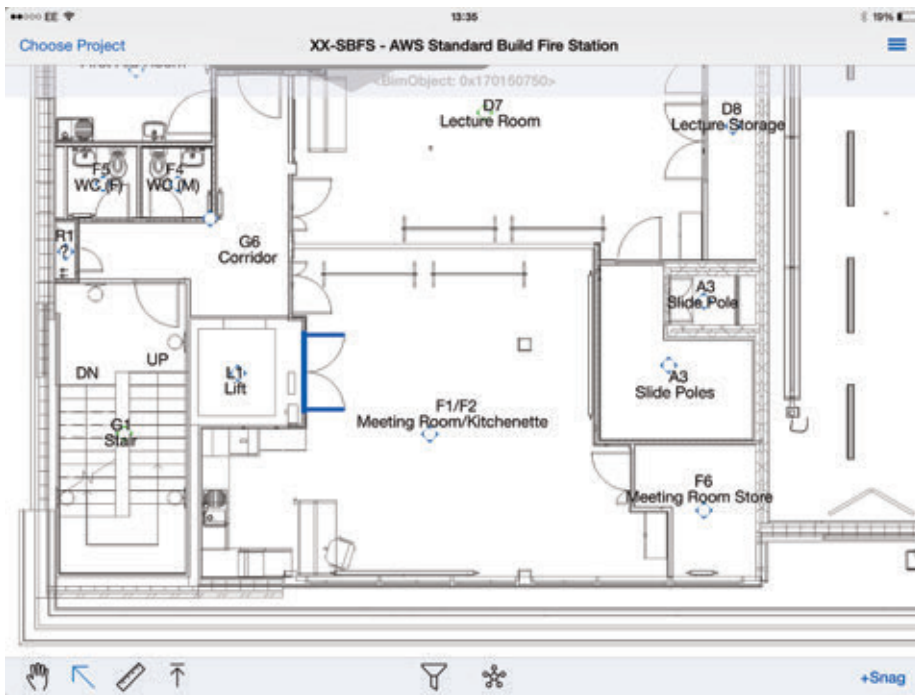
requirements of Level 2 BIM and beyond as a hosted solution. As 2016 approaches and the gap between the haves and have not's of the BIM world grows there is no better time to jump on board and benefit from the lessons learnt from some of the early adopters.

In this, the first of four articles leading to the 2016 deadline we aim to take you on a journey of the simple functionality that is now readily available, as well as reassure individuals of the benefits of BIM that can be realised in case studies. In the next papers

we will address the solutions and some case studies to allow users to appreciate the scale of the benefits and the simplicity and ease with which this can be achieved starting with the interface to programme.

Graeme Forbes

Graeme Forbes is the Managing Director of Clearbox a technology and consulting business that brings years of experience in the BIM space through new collaborative tools that help to bring simplicity to the delivery of BIM based projects.



Graeme Forbes
Managing Director
 Clearbox
 Tel: +44 (0)800 085 9872
 sales@clearboxbim.com
 www.clearboxbim.com

Manage assets across their full lifecycle using BIMXtra

"Game changing products for the built environment"

- BIMXtra
- Space Planning
- Multimedia
- Consulting

- Asset information link to intelligent visuals
- Operates in 2D & 3D from BIM or IFC
- Suitable for New Build or Existing Projects
- Central revision controlled digital information hub provides access to all
- Cloud based with secure PC and mobile access

Deliver improved performance in the creation & management of your assets

Asset • Location • Documentation • Intelligence

www.clearboxbim.com +44(0)800 085 9872



NFB BIM survey reveals barriers to adoption remain

The 2014 Contractor Survey from the National Federation of Builders indicates an increase in relation to BIM readiness and use, however a number of barriers still remain which preclude full adoption...

In 2012 the NFB published its report BIM: Ready or not? The report was based on an industry wide survey which set out to assess the readiness of the contracting sector with a particular focus on SMEs. At the time, the survey confirmed that the industry had a giant leap to make if it were to achieve the government mandate of BIM level 2 by 2016. Specific barriers to adoption were identified as:

- A lack of information available for companies to make an informed decision about BIM;
- A lack of client of demand;
- A perception of prohibitively high investment costs.

The overall message of the 2012 survey findings indicated that there was a clear gap between the

appetite for BIM in terms of the commercial rationale on the one hand, and the knowledge and skills to take action on the other.

In 2013, the NFB launched a second survey to measure and assess the progress made by the sector. The interim results make comparisons with the findings of the 2012 survey.

Respondents were asked what they perceived the greatest barriers to adoption to be. The results indicated the greatest barriers to be a lack of education and training and an unwillingness of industry to collaborate. These were followed closely by the purchasing of software in not only the cost, but also confusion around compatibility across their supply chain. Client demand was still seen as a barrier, with almost half choosing this option. This was

What do you perceive the greatest barriers to adoption of BIM to be? (You can tick more than one box)	Response
Lack of industry collaboration	58%
Integrity of information	23%
Education and training	68%
Purchasing of software	49%
Forms of contract	18%
Cost	39%
Liability/ risk concerns	17%
Uncertainties regarding ownership of data	30%
Lack of clarification of roles and responsibilities	24%
Lack of expertise / experience	52%
Supply chain	48%
Client demand	44%
Lack of inter-operability between software solutions	28%
Clarity of client requirements	38%

also one of the findings from the first survey which indicates that there is still a lack of client drive towards implementation which may be reflected in the willingness of the industry to adopt BIM. Significantly, regional public procurement is not included in the central government mandate for BIM. The public sector client is very much the driver of BIM at this level but a large proportion of public sector clients simply do not understand BIM and how adoption can be achieved. The NFB's Client Readiness survey, published earlier this year, identified that over 50% of public sector clients thought that BIM should be a core competency, but this lack of understanding provided a barrier to both demand and adoption of BIM within this sector of the industry. The lack of a mandate at this level is resulting in a slow and fragmented uptake and without the demand from clients, contractors can be reluctant to make the financial commitment to training or the development of a strategic approach to BIM.

In order to gauge general understanding of BIM, respondents were asked what they perceive BIM to be, and whether they understand what it means for their projects. Respondents provided answers to more than one option for this question, with 83% of respondents indicating that they understand BIM to be a collaborative process, clearly indicating that

BIM is now perceived to be more than 3D drawings and software amongst contractors.

In the 2012 survey, 43% of respondents stated they did not perceive BIM as a core competence within their business, however in the 2014 survey this increased to 76%.

A large number of contractors indicated in the earlier survey that they were not planning to train their staff or were waiting for BIM to standardise. Over half now stated that they had or would be organising training and a third that staff will be attending free events. This is a positive finding with only the minority waiting for practices to standardise or not train at all, again highlighting that industry are progressing with the adoption of BIM.

The picture generated overall from the NFB's 2014 Contractor Survey indicates that the industry is beginning to see an increase in relation to BIM readiness and use amongst the contracting sector. Many now perceive BIM to be a core competency within their organisation. However, a number of barriers still remain which preclude full adoption of BIM and there is still much work to do if the industry is to meet the 2016 deadline. ■



.....
 National Federation of Builders (NFB)
 Tel: 0845 057 8160
www.builders.org.uk
www.twitter.com/nfbbuilders

BIM – defining better information management

BIM, despite being a small acronym, is a big word in construction. While there has been a lot of hype around BIM over the last few years we see the conversation is starting to shift toward companies asking – what’s really in it for me? However, the discussion needs to further evolve to start looking at how BIM can help define and create better business outcomes.

Models are important but they aren’t the be all and end of the information revolution – it’s the data that’s important, and for many in the industry that will still be shared in familiar 2D products like MS Word or Excel.

BIM allows clients, operators and maintenance teams to have all their data for an asset in one place. It allows for meaningful analysis across a wider selection of business information to be carried out rather than making business decisions based upon anecdotal guesses. By combining disparate data sets together – linked around a model of the asset – it becomes possible to review infrastructure data in a much more powerful way and as a result, manage assets better.

Implementing and using shared data sets with feedback of what actually works – proven by hard evidence – will improve design in the future. However, this shift of how we manage information requires more than just using software, it requires a behavioural change. This is the real change that BIM brings to businesses. It breaks down silos and enables individuals, groups and departments to share information openly and transparently. This

doesn’t mean that all information needs to be shared with everyone all the time – BIM provides the opportunity for relevant information to live in the model and only be accessed when needed.

While BIM has and is continuing to help evolve and change the construction industry the next big step will be harnessing remote sensing and telemetry. Real time feedback on the performance of structures such as bridges and tunnels will allow managers to understand how their assets are actually performing. Automating processes so that out of range figures trigger further analysis or inspections, creates the ability for pre-emptive maintenance to be carried out in a structured way rather than just having reactive or end of life strategies in place.

BIM can mean something different to everyone and that’s not a bad thing. But better data sets make for better decision making and help owners, operators, designers and installers work much more efficiently from a position of knowledge rather than ignorance.

Tekla Structures BIM software

We constantly test and develop Tekla Structures and help you to get started with it.

Models created with Tekla BIM software carry the accurate, reliable and detailed information needed for successful Building Information Modelling and construction execution. Welcome smoother workflow to your company with Tekla Structures and constructable models.

Tekla works with all materials and the most complex structures – you set the limits. Our customers have used Tekla Structures to model stadiums, offshore structures, plants and factories, residential buildings, bridges and skyscrapers.

Help with implementation

Tekla staff and our resellers help with implementation of the software. We work closely with our customers and offer local support, training and consultation.

Open approach to Building Information Modelling

Although Tekla is ready to use, the software is also highly customisable. As Tekla has an open approach to BIM, you can run other providers’ solutions and fabrication machinery and still interface with Tekla. Extending and enhancing Tekla Structures is easy with Tekla Open API, the application interface.

Duncan Reed, Digital Construction Process Manager, Tekla



Duncan Reed

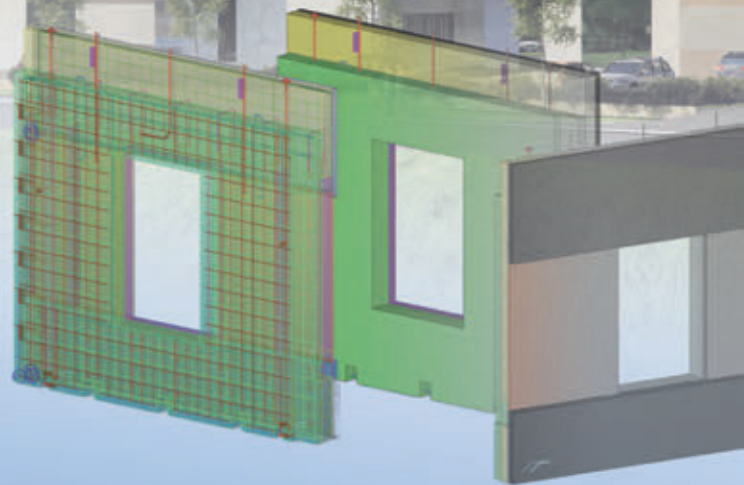
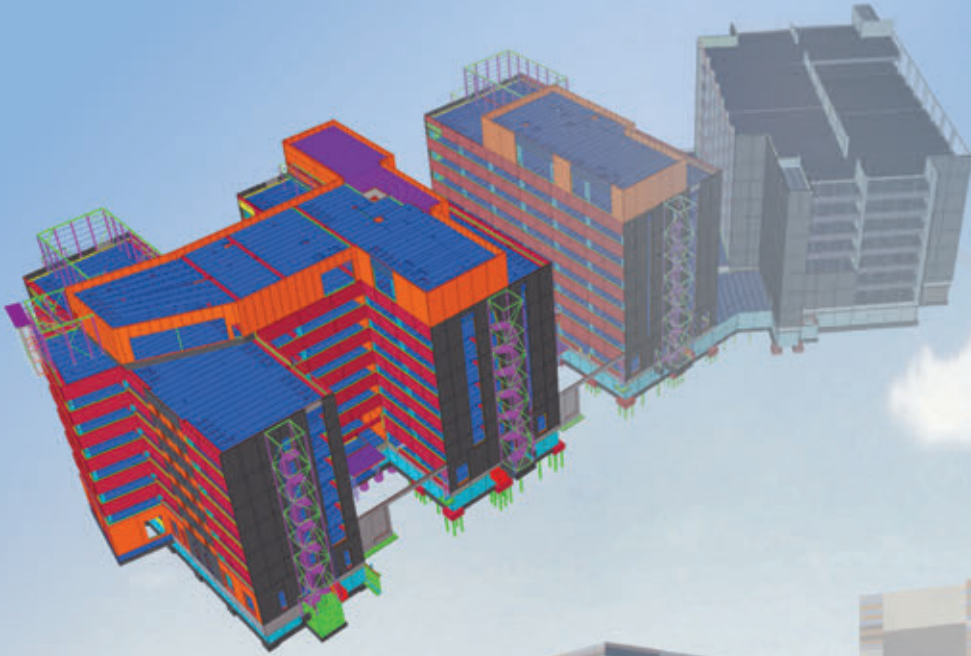
Digital Construction Process Manager

Tekla

Tel: +44 113 307 1200

sales.uk@tekla.com

www.tekla.com/uk



DO BIM BETTER WITH TEKLA

With the almost daily BIM announcements by clients, contractors and suppliers identifying their increased efficiencies and greater value by adopting BIM, not to mention the Government drive towards adoption by 2016, Tekla recognise that forming a BIM strategy alongside responding to CE Marking and ISO requirements can seem a daunting task.

We can help with the implementation of BIM within your organisation - advising on making the right business decisions, getting the most from your software and help with workflow procedures to ensure you are ready for the challenge ahead.

For further information on how Tekla can assist with BIM implementation and other consultancy services we offer, please call 0113 307 1200.

> www.tekla.com/uk

Performance standards to rely on

Paul Wilkins, Chair of the ACAI outlines what standards apply to organisations delivering building control and how these can help the customer...

The Association of Consultant Approved Inspectors for the private sector (ACAI), along with Local Authority Building Control for the public sector (LABC), are working together to explain the performance standards expected of all building control bodies in England & Wales.

As Chair of the ACAI, it is part of our remit to raise the profile of building control as a service that is valued, and will continue to support objectives and initiatives that encourage best practice and cooperation across both the public and private sectors.

Building control bodies work with the Building Regulations which provide a flexible set of national standards for building work covering all projects from major new commercial developments and new homes, to extensions and home alterations. At their best, building control bodies provide a proactive and valued solution to help designers and developers demonstrate compliance with the Building Regulations.

However, because a competitive dual system of building control exists in England and Wales (public and private sectors), successive government ministers in both countries have maintained an advisory group to measure performance. The Building Control Performance Standards Advisory Group (BCPSAG) sets and measures the standard of service provided by these building control bodies each year. This is now a sub-function of BRAC – Building Regulations Advisory Committee – which is a non-departmental, industry-based, advisory group sponsored by the English and Welsh governments.

A new article describing the performance standards applied to building control organisations, and explaining how these affect customers is now available

on the website of the representative body for ACAI, LABC, the RICS, CABE and CIOB – the Building Control Alliance (BCA). The article is also available on our website and explains how customers can use these standards as a way of evaluating, short-listing and comparing building control bodies for their own work.

Market feedback shows that building control rates are very competitive without a wide range of pricing. But, quality, competencies, delivery and management vary much more widely. Customers can use the standards to understand how best practice should be delivered, but more importantly, the standards exist to help evaluate the existing or proposed relationship with a building control partner or used to compare services.

There are nine key BCPSAG standards.

1. Policy, performance and management system

This means every building control body should create and publish a business policy covering the promised support and service levels to customers. This includes legal obligations in achieving compliance. In addition, the organisation should have a Quality Management System for recording and measuring delivery that is available to customers to analyse.

2. Resources

Having promised support and service levels, building control bodies should demonstrate that they possess the resources and competencies to deliver these promises on all categories of work undertaken. It's important to check if the building control provider has the experience or professional knowledge to work on all categories of building work, with sufficient surveyors possessing the right competencies to support a new project.

3. Consultation

Building control bodies should set out how they will undertake all statutory consultations in a timely manner and how the observations of consultees (eg fire services) should be communicated in writing to the customer. Ensuring a robust process is in place that will complete these consultations is a key requirement.

4. Pre-application contact and provision of advice

This enables building control bodies to explain how they will work with customers during the early design process to provide feedback on plans, compliance, innovation and affordable solutions. It includes the provision of a named 'account manager' to ensure continuity of thinking throughout a project. Pre-application design advice on compliance is a vital area of cooperative feedback and innovation, and again raises the profile of the industry.

5. Assessment of plans

Building control bodies have to demonstrate how, when assessment of plans is undertaken, they will communicate feedback on compliance issues and the views of statutory consultees including any conditions pertaining to the approval or passing of plans. As 'plan checking' is a vital area of feedback that can save money and time during construction, it's advisable to ask how much feedback will be received from whom and what experience they have.

6. Site inspection

Building control providers must state how they will determine and agree a project service plan with customers, what will be covered, when, and inspected. Additionally, they should explain how notes will be made and recorded together with an explanation of how contraventions will be communicated and resolved. Customers should understand what level and frequency of site visits will be received from the service plan quote (tender/proposal) provided by a building control body. For example, what happens if site issues are found or problems occur during construction requiring more inspections?

7. Communications and records

This covers the provision of notices, written records,

documentation and certificates plus their storage in a retrievable way for at least 15 years. Local authorities and approved inspectors operate under different regimes so customers should understand the policy of the building control body appointed.

8. Business and professional ethics

This is a commitment from building control bodies to respect the codes of professional practice governing individual professionals. Customers should understand that professional codes do apply and that conflicts of interest or matters of principle can arise even though it's rare. The ACAI, BCA, LABC, and the professional bodies (RICS, CIOB, and CABE) all support arbitration and mediation.

9. Complaints procedure

Finally, building control bodies must have an easy-to-find and user-friendly complaints process, including onward access to industry mediation. Any complaints made should be recorded and resolved pro-actively.

The ACAI fully supports the BCPSAG standards in our continued push toward higher service delivery, and would urge potential customers to utilise those standards in their projects. In this way, wider industry can be assured that the building control profession delivers the best possible services. ■

Useful links

<https://www.gov.uk/search?q=BCPSAG>

<http://wales.gov.uk/topics/planning/buildingregs/bracw/building-control-performance-standards-advisory-group/?lang=en>

<http://www.buildingcontrolalliance.org/>

<http://www.labc.uk.com/>

<http://approvedinspectors.org.uk/>

.....
Paul Wilkins

Chief Executive at Butler and Young Group

Chairman at Association of Consultant Approved Inspectors (ACAI)

Chair of the Building Control Alliance (BCA)

chairman@approvedinspectors.org.uk

www.approvedinspectors.org.uk

CDM2015: The art of selective interpretation

Although reservations remain about the HSE's proposals for CDM2015, it looks like the role of Principal Designer is here to stay. James Ritchie of The Association for Project Safety outlines what steps industry should now take...

At the Health and Safety Executive Board meeting on 13th August, the HSE Construction Division presented their Report on the Outcome of the Consultation Document – their take on the industry's response to the consultation document. Some people might say that former cabinet secretary Robert Armstrong would have been proud of the way the report was written, but their analysis was not unexpected given how carefully worded were the consultation questions.

CDM co-ordinators can however feel justifiably hurt by the somewhat disingenuous comment that all of their responses should be viewed as a 'Campaign' and that therefore the HSE Board should view the percentage of positive or negative responses accordingly. Had the Association for Project Safety actually run a campaign advising their members to respond in a particular manner, the HSE's comments would have been understandable. Of course, if all of the CDM co-ordinators' responses had been in favour of the HSE's proposals, one wonders if such a 'Campaign' suggestion would have been made.

Having seen most of the construction and health and safety institutes' responses it would appear that APS were not alone in their reservations about the HSE's proposals for CDM2015. Both IIRSM and IOSH were dismissive of many aspects of the proposed regulations, and consultation respondents found potential legal problems with the draft statutory instrument, all which will have to be sorted out quickly if they wish to bring the regulations into force in April 2015.

Whilst the HSE have bowed to industry demands for an Approved Code of Practice to run alongside the industry prepared guidance, the one thing the HSE still have not addressed properly is the cost of these changes to construction in terms of re-training and the issues surrounding a potential drop in construction health and safety standards whilst the industry gets used to the new regime.

The removal of the CDM co-ordinator role was always going to happen, even if the industry had voted substantially against it. It has been the failure of the HSE since 2007 to enforce the early appointment of CDM co-ordinators and subsequently, the failure of industry to ensure the integration of the CDM-C into the project team that has led to the HSE's proposals for CDM2015. Removal of the CDM-C role should be no problem to construction health and safety provided that those people appointed as Principal Designers have the skills, knowledge and experience to coordinate pre-construction health and safety adequately, and understand exactly what they are supposed to do. To this end, the design institutes need to come together and agree exactly what skill set Principal Designers need to discharge their duties effectively and then work hard to ensure their memberships are suitably skilled.

For all but the simplest of projects, those taking on the role of Principal Designer or Principal Contractor will want to make sure they have access to good construction health and safety advice, and the industry needs to determine what they are looking for in terms of construction health and safety risk

Continued on page 24...



IMPROVE YOUR DESIGN RISK MANAGEMENT

Industry recognised
advice, guidance & training

FIND OUT MORE AT
www.aps.org.uk



Continued from page 22...

management consultants i.e. someone who is professionally qualified to Chartered level in a relevant construction related institution, has validated CPD in this field, and a typical additional qualification – for example the NEBOSH Construction Certificate, member of the health and safety register administered by the ICE, membership of the Association for Project Safety, membership of the Institution of Construction Safety and of course, most important of all, evidence of significant work on similar projects with comparable hazards, complexity and procurement route.

“Removal of the CDM-C role should be no problem to construction health and safety provided that those people appointed as Principal Designers have the skills, knowledge and experience to coordinate pre-construction health and safety adequately, and understand exactly what they are supposed to do.”

This is an approach that many of the construction industry’s leading commercial clients are now advocating through the use of experienced, knowledgeable CDMCs as construction health and safety consultants having discovered the tangible benefits they bring to their projects for remarkably modest costs – and it is not only the clients that have been benefitting from this service but also the designers and contractors. So, if clients are wanting to employ advisers with demonstrable skills, knowledge and experience in design, construction and health and safety, and many designers are apprehensive of taking on health and safety responsibilities being suggested in the HSE’s proposed Principal Designer role, then the answer is surely for project teams to equip themselves with a competent and capable CDM consultant, with a capability proportionate to the complexity of the project involved. The top end professional clients in our industry know exactly why they employ capable people to advise them on health and safety – it is good for business – and that looks set to continue irrespective of the Principal Designer.

The HSE’s CDM2015 proposals provide an opportunity for the construction industry to reduce bureaucracy, streamline the pre-qualification process through greater use of SSIP and PAS9, and try to introduce

construction health and safety in a proportionate manner to those smaller projects where the majority of accidents are occurring. For the very smallest projects, probably in the domestic market, health and safety coordination should be simple enough for the lead designer to manage without the need for a CDM consultant, but it will need a concentrated effort by both the HSE, based around un-announced inspections of smaller sites, and greater education of both designers and contractors by their professional bodies if the change is to be successful. The ‘elephant in the room’ will be whether or not the HSE have the resources, ability and stomach to enforce their proposed new CDM Regulations during the pre-construction phase, or will they again just ignore it and concentrate on the soft target option of prosecuting contractors for failings on site.

We can only hope that, whatever the outcome, the construction industry, especially the SME sector, takes a sensible, pragmatic and proportionate approach to health and safety and that clients, designers and contractors all realise their limitations and understand when they need to employ a specialist CDM consultant to advise and assist them. We also need to hope that the industry written guidance to the new CDM Regulations is clear and effective, especially as the Approved Code of Practice will not appear until well after the CDM2015 regulations come into force. ■



.....
James Ritchie BA BArch RIBA RMaPS
Head of External Affairs and Deputy Chief Executive
 The Association for Project Safety
 Tel: 0845 2691847
 james@aps.org.uk
 www.aps.org.uk

Fast Flexible Finance

Our aim is to ensure that our UK customers benefit from over 40 years of knowledge and experience in the construction sector. Since 1970 we have remained true to our customers – helping them to survive 4 recessions. In the good times we are also there to help businesses grow. We will always focus on the needs of our customers and treating them fairly.

JCB Finance's nationwide field force is able to offer a local service in tune with local conditions.* Our aim is to help you preserve your vital working capital whilst spreading the cost of machinery acquisition in the most cost effective and tax efficient manner. After all – you wouldn't pay your staff three years wages in advance so why do the same for your plant – paying cash won't make it work any harder on day one. In 2012 we financed 52% of all JCB machines sold in the UK.

We offer the full suite of asset finance options from Hire Purchase through to Leasing. Some of these have unique features and benefits to suit the construction industry. Our finance options are not restricted to JCB equipment but are also available for other new non-competitive machinery and all used machinery plus cars, 4x4's, commercial vehicles, access equipment and a whole lot more.

JCB Finance Key Stats:

- Total lending 1970-2012 – just over £8.0 billion
- Total lending in downturn (2008-2012) – c. £2.75 billion plus 4,604 new customers
- Many reports show that SME's have found it hard to access traditional sources of lending but in 2012 our lending grew by 31.7% with total turnover of £748 million
- In 2012 a total of 22,236 assets across 16,654 agreements were financed
- In 1993 we entered the Local Authority market lending c. £270m to date – current balances with 158 different Local Authorities
- Asset mix – JCB 62% and Others 38%
- In 2012 JCB Finance provided 21.3% (some months touching 40%) of all HP and Lease finance in the UK construction machinery market (according to Finance and Leasing Association asset finance statistics).

* JCB Finance Ltd is regulated and authorised by the Financial Conduct Authority. JCB Finance only provides asset finance facilities to businesses in the UK.

To experience a unique level of service ring

0800 150650

Speak to our direct sales team for a no obligation quote

www.jcb-finance.co.uk



Energy saving insulation

The Energy Saving Trust examine solid wall insulation and what opportunities it has for UK homes along with what households should consider...

It goes without saying that more expensive measures will provide the greatest savings and warmest homes. Unsurprisingly, millions of households have installed cavity wall installation which offers a very good energy saving payback, while practically every home in the UK now has some form of loft insulation installed.

This is good news for the UK but there are still millions of homes with solid walls that could still benefit from wall insulation. Only three per cent of solid wall properties have solid wall insulation, despite solid walls letting through twice as much heat as cavity walls do. There is an opportunity here to dramatically improve the UK's housing stock through solid wall insulation either on the inside (internal wall insulation) or outside (external wall insulation) of properties.

With many homes that could still benefit, but limited government funds to support solid wall insulation, there is a need to target those homes that could benefit the most. Finding these households most in need is not always simple. Luckily more and more data is available about the UK's housing stock, such as the Energy Saving Trust's Home Analytics, which can be used to focus insulation activity on the coldest and most expensive to heat homes, along with the most vulnerable households, to make the most of any government support on offer.

The energy savings associated with solid wall insulation is high – around £270 a year in the average three-bed semi-detached home or even £460 a year in a detached home, with carbon savings between 1,000 and 2,000 kg. However, the up-front costs are high and vary significantly depending on the level of work

required in the home. External wall insulation could cost anywhere between £9,000 and £26,000 while internal wall insulation is between £4,000 and £16,000. Another barrier is the hassle associated with the works, with households not wanting the disruption to the home that comes with solid wall insulation.

Luckily, there are ways to remove these barriers. If households are looking for cheaper rates, fitting the insulation work in line with other home improvements will save money on the job and spread the cost of the insulation, while also removing the hassle and disruption barriers. For example, if households are planning a new kitchen or bathroom, then it might be a great time to also explore internal wall insulation.

Households are three times as likely to consider energy efficiency upgrades alongside other home improvements, works and renovation projects, while 85 per cent of UK households would stretch their budget on home improvements to pay for energy efficiency measures and upgrades. This should be seen as an opportunity for installers who could sell energy efficiency measures alongside wider home retrofits.

Another important consideration with solid wall insulation is making sure it complies with Building Regulations. Normally the installer will ensure that the insulation is up to standard and will arrange approval from the local Building Control Office. However, if they are not going to do this, then the Building Control Office should be contacted at an early stage to make sure the proposed works comply.



“The energy savings associated with solid wall insulation is high – around £270 a year in the average three-bed semi-detached home or even £460 a year in a detached home, with carbon savings between 1,000 and 2,000 kg.”

For solid wall insulation the homeowner will need to employ a professional installer, with external wall insulation required to be fitted by a specialist installer trained by an approved system designer. Homeowners can search for companies that specialise in solid wall insulation through the National Insulation Association (NIA) and Insulated Render & Cladding Association (INCA) websites. If the internal wall insulation works coincides with other building work then the homeowner might want to ask the same builder to do the insulation, but it's important to check that they have experience in fitting internal insulation. ■

For more information about solid wall insulation visit <http://www.energysavingtrust.org.uk/Insulation/Solid-wall-insulation>

energy[®]
saving
trust

.....
Energy Saving Trust
www.energysavingtrust.org.uk
[www.twitter.com/EnergySvgTrust](https://twitter.com/EnergySvgTrust)



Rising damp: rising allergies

Richard Sharpe, PhD Researcher at the University of Exeter Medical School addresses the concerning rise of allergies caused by damp...

The modern energy efficiency mantra dictates that we build new homes to increasingly stringent regulations and retrofit old housing stock to match. We insulate our houses with new materials and seal every last crack. With undeniable benefits for heating bills and CO₂ emissions, what about the impact on the indoor environment?

Internal housing conditions provide an important contribution to good health and wellbeing, and the state of our indoor environments is influenced by a number of factors. Heating, insulation, ventilation and people's behaviours, along with the type, orientation and geographic location of a property, all work to affect indoor air quality.

Over recent years we've witnessed a rise in allergic diseases that can't be explained by factors such as genetic changes alone. With one in three people suffering from allergies in industrialised countries, there has been an increasing focus on indoor air quality to explain this rise - and a robust body of evidence now suggests that rates of allergic and respiratory disease are linked to poor indoor housing conditions.

Based at the University of Exeter Medical School's European Centre for Environment & Human Health, we've just published findings that show damp and specific types of mould can pose a significant health risk to people with asthma.



Increased household energy efficiency can lead to a number of health benefits and help make a property more affordable to heat. However, efforts to prevent heat loss by reducing ventilation have led to undesired consequences for indoor air quality – increasing indoor dampness and the risk of fungal contamination, which currently affects around 16% of European dwellings.

The extent to which a home is heated and ventilated is also largely controlled by the habits of its occupants, and the way people live in their homes varies hugely. For example, some people dry their washing on indoor racks, some shower with the window closed, and many keep their windows and doors closed as much as possible in winter. All of these behaviours can increase the humidity and dampness in a home, with poorer families in particular less likely to maintain adequate ventilation through the winter months – often failing to heat the whole building.

Crucially, we know little about how these behavioural factors contribute to damp and mould in homes that have been retrofitted to make them more energy efficient – an increasingly important issue as huge swathes of old housing stock is revamped.

Our research has highlighted the need for housing providers, residents and healthcare professionals to work together to assess the impact of changes in housing quality and occupant behaviour, and we're working closely with two Cornish companies to try and find some answers.

In collaboration with social housing provider Coast-line Housing, we're aiming to understand how new building practices, intended to reduce energy use and fuel poverty – such as improved insulation and energy efficiency – can affect occupant health.

Collecting data through questionnaires with residents and the detailed sampling of homes, we're

We critically reviewed the findings from 17 studies in eight different countries and found that the presence of several types of mould – among them *Aspergillus* and the antibiotic-producing *Penicillium* – can lead to breathing problems in asthma sufferers, worsening their symptoms significantly. It also looks as though mould may actually help to trigger the development of asthma – but research in this area is still in its infancy.

With over 10 varieties found in a typical home, most people may not be aware that moulds are absolutely abundant in our outdoor and indoor environments. If you have a house or flat that suffers from damp, you're more likely to have more mould.

So what about the causes of damp? The structural integrity and architectural design of a (typically old) building can often lead to water making its way inside. A lack of ventilation and heating can then increase the indoor humidity, with this moisture ultimately condensing on cold surfaces and promoting the growth of mould.



hoping to shed light on the complex mix of factors that affect indoor dampness, and communicate best practice to reduce the presence of mould. This award winning enterprise-research partnership is at the cutting edge of built environment research and has been expanded to include the innovative technology of a second Cornish company, Carnego Systems.

Carnego are helping the team by using their digital monitoring tools to collect real time data (such as temperature and humidity) on the indoor environment. As we attempt to broaden the study's applications further, we're also working with several other partners including Community Energy Plus and the Met Office – who will be providing historical weather data to determine how external weather can affect indoor air conditions.

There's no doubt that energy efficient homes have been an incredibly positive step in the evolution of the country's housing stock. But the implications for dampness, mould, house dust mites and allergic conditions have been overlooked. We're ultimately hoping that our findings will go on to inform housing policies and health intervention work aimed at reducing the costs associated with maintaining the

built environment, as well as the health and wellbeing of residents throughout the UK. ■

You can read more on this research by following the links below:
www.ecehh.org/research-projects/health-and-housing/
www.onlinelibrary.wiley.com/doi/10.1111/cea.12281/abstract
www.sciencedirect.com/science/article/pii/S009167491400952X

This research has been supported by the European Regional Development Fund Programme 2007 to 2013 and European Social Fund Convergence Programme for Cornwall and the Isles of Scilly.



.....
Richard Sharpe
PhD Researcher
European Centre for Environment & Human Health
University of Exeter Medical School
Tel: +44 (0)1872 258131
info@ecehh.org
www.ecehh.org

Full Fill for the perfect fit

How fully filling with a mineral wool insulation can be the most practical and cost effective solution

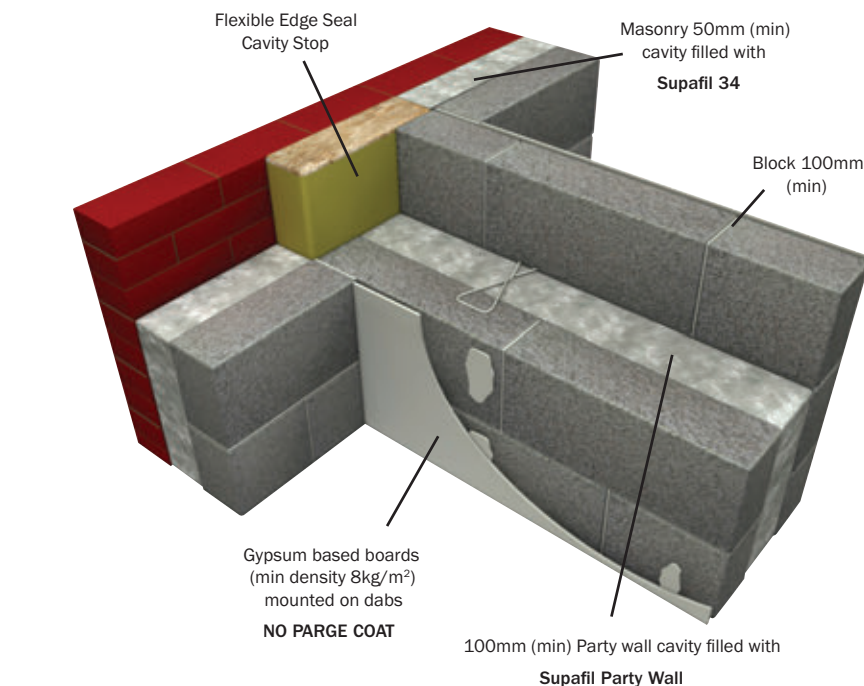
When it comes to installing any form of insulation, the performance characteristics of a product must always be considered. Indeed, when approaching a masonry cavity wall application, the fire and thermal performance of the insulation, in addition to the prevention of water penetration are vital issues that must be addressed – the selection of appropriate materials and jointing methods for the outer leaf are therefore crucial.

Alongside these factors, another key consideration can be cost. Fundamentally, housebuilders and developers require high performing products that can save them time and money. With this in mind, there is a solution that ticks every box. The recommended masonry cavity wall solution is full-fill mineral wool insulation, either injected (such as Supafil) or built in slabs (such as Earthwool DriTherm Cavity Slabs).

These systems not only provide U-values that comply with Building Regulations, but they are also the lowest in cost. Even with dense concrete blocks it is possible to achieve very high thermal performance in a manageable wall width; and a full-fill solution is suitable for all types of buildings.

Full-fill solutions are the most commonly used in the market with approximately 55% of new build cavity walls incorporating them, and 85% of all residential cavity walls when including refurbishment.¹

Housebuilders using full-fill solutions will make significant savings, whilst still achieving the thermal performance required to meet compliance with Building Regulations. In fact, compared to partial fill solutions, specifiers



can save up to 50 per cent of the cost, which can equate to up to £535 per plot – a substantial cost saving for housebuilders when they are building multiple plots.

Meanwhile, mineral wool insulation products are non-combustible and classified as Euro-class A1 to BS EN ISO 13501-1 – the highest possible “Reaction to Fire” classification – compared to a D or E typically achieved by foam plastic insulation materials.

Furthermore, there is a common misconception that water can bridge the cavity and a full-fill solution cannot be used in severe exposure zones. In reality, there are mineral wool insulation products available on the market that contain a water-repellent silicone additive to ensure that no liquid water is able to pass through and reach the inner leaf of masonry. Specifiers should only choose those products that are BBA certified for all exposure zones

– even when a site is being insured by the NHBC².

Undeniably, a full-fill mineral wool insulation to cavity walls offers the most practical, high performing and cost effective solution. This all helps in contributing to keeping properties warmer and for the homeowner, saving money on their energy bills in the long run.

For more information please visit www.knaufinsulation.co.uk

¹ Building Insulation Market, Construction Markets 2011

² Consult NHBC Standards for guidance regarding wall construction in each exposure zone

KNAUFINSULATION
it's time to save energy



Designing out the performance gap

The Zero Carbon Hub has recently recommended priority actions for the industry to close the 'performance gap'. Here, Nick Ralph from MIMA welcomes the report and draws upon some of MIMA's own work to illustrate its importance...

In its July 2014 report 'Closing the gap between design and as-built performance' the Zero Carbon Hub highlighted a number of key issues facing the industry if we are to tackle the performance gap – but two areas in particular are close to MIMA's heart.

The report highlighted concerns regarding the appropriateness of standard test methods for manufacturer performance declarations surrounding thermal conductivity, heat recovery and efficiency etc. This is because products and materials are generally tested in isolation, not in-situ on site. Whilst testing materials in isolation provides a logical and level comparison between products, it does not allow for issues such as air movement within a wall

element, or build tolerances when different products are fixed together. The Zero Carbon Hub therefore questioned the validity when results are used as an input into energy modelling tools such as SAP and then related to as-built performance.

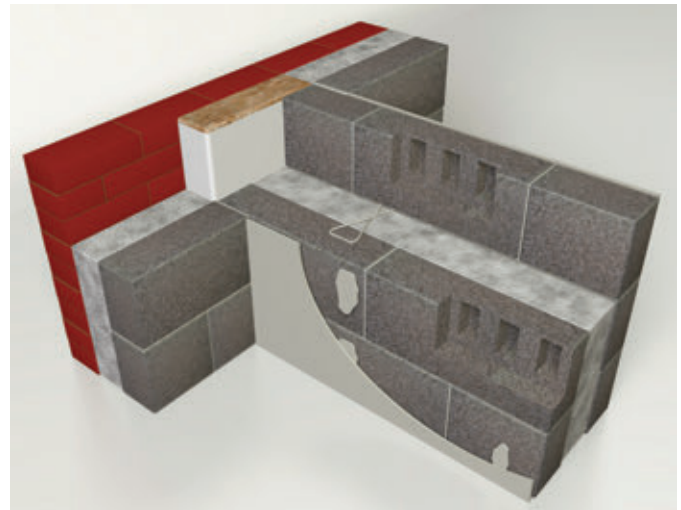
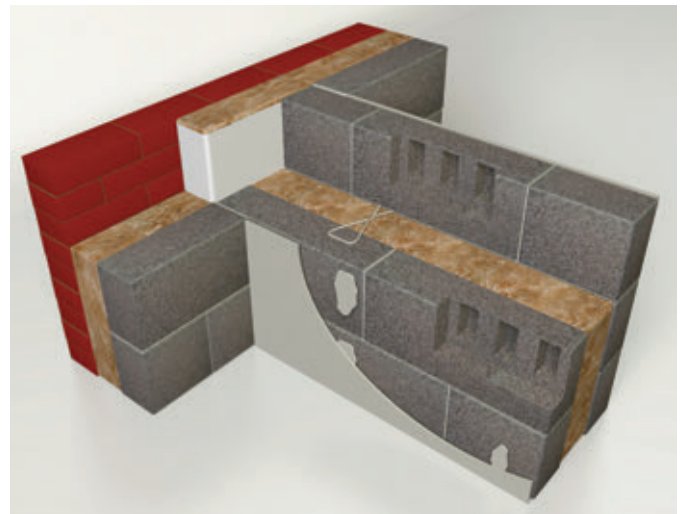
Real performance testing is an area MIMA has been heavily involved in over recent years, particularly in relation to researching the effects of the party wall bypass. Previously, there was an assumption that cavity party walls were an area of thermal equilibrium between two heated spaces and not a source of heat loss. However, studies by the Buildings and Sustainability Group of the School of the Built Environment at Leeds Metropolitan University (LMU)

between 2005 and 2007 showed that, for example, in a mid-terrace dwelling the heat lost through untreated party cavity walls could be greater than that which is lost through all of the other external elements combined.

A series of field trials were conducted on the party wall cavities of terraced and semi-detached masonry houses. The research combined a number of methodologies to achieve robust results:

- Coheating tests were undertaken of dwellings either side of the party wall both heated to the same temperature. Internal measurements included mean internal temperature, humidity and energy consumption;
- Airtightness pressure tests were taken at the start and end of the coheating test period, including the identification of air leakage pathways;
- Heat flow into the party cavity wall was measured directly using heat flux sensors attached to the surface of the internal faces of the party wall;
- A local weather station was attached to the test dwellings, to measure external temperature, external humidity, wind speed, wind direction and solar insolation;
- Air temperatures were taken inside the party wall cavity;
- Observations and measurements of the dwellings as constructed were recorded, to include borescope investigations of cavities and junctions;
- Infra-red thermal images were taken from both inside and outside the dwelling and under a range of external conditions.

The test results were two-fold. Firstly they proved that the magnitude of the party cavity wall thermal bypass was equivalent to the party wall having an effective U-Value of the order 0.5 to 0.7 W/m²K. As a result, there was an inclusion in the amended



Examples of party wall insulation

Domestic Building Regulations in 2010 (Part L1A) that party walls would need to be fully filled with suitable insulation and effectively sealed at the edges in order to achieve an effective zero-value.

The tests also demonstrated that full-fill mineral wool insulation is particularly suited to meeting the regulations, as together with effective edge sealing, it has been proven to comply with the requirements for a zero U-value without compromising acoustic performance.

MIMA welcomes the Zero Carbon Hub's recommendation for a range of approaches to diagnostic testing that can be consistently carried out at scale and available for a reasonable cost – and the call for



Nick Ralph
Mineral Wool Insulation Manufacturers Association (MIMA)

significant investment in R&D from government, developers, manufacturers, and research programmes.

“Real performance testing is an area MIMA has been heavily involved in over recent years, particularly in relation to researching the effects of the party wall bypass.”

The importance of good workmanship was also highlighted. Ultimately, manufacturers’ products are only as good as the installation – and skills and knowledge training is also a priority action recommended in the report, with an emphasis on how crucial it is that installation instructions are adhered to.

The recent changes to the new Part L regulations go some way to tackling this. Tougher rules looking at thermal bridging and air permeability are widely expected to lead to better quality workmanship on building sites - with leakage allowances down to

five cubic meters per square metre per hour – and penalties being applied to any dwelling not physically tested. This drive towards real performance, which MIMA is very active in, is going to be a clear way of identifying shortfalls in building materials and techniques.

Product choice also has a role to play. For example, the research undertaken by LMU into the thermal performance of party walls also required the performance of the external elements of the building envelope to be measured. During this aspect of the investigation, the full-fill mineral wool insulation slabs installed in the external wall cavities were shown to provide robust in-use performance. In particular, the close fit provided by mineral wool at insulation joints and at building interfaces played an important part in ensuring there wasn’t an appreciable ‘performance gap’. Quite simply, good performance demands good fit, and using materials that are easy to fit without gaps proved to be an important design step.

MIMA has long championed the use of Building Regulations to drive change in building practices, to improve delivered thermal performance and measure real, in-situ performance. The Zero Carbon Hub’s latest report and the recent changes to Part L are therefore seen as greatly encouraging and will hopefully bring the industry another step closer to closing the performance gap.



.....
Nick Ralph
Mineral Wool Insulation Manufacturers Association (MIMA)
 Tel: 020 7935 8532
 admin@mima.info
 www.mima.info

SUPAFIL[®]



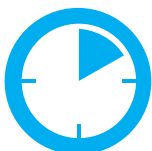
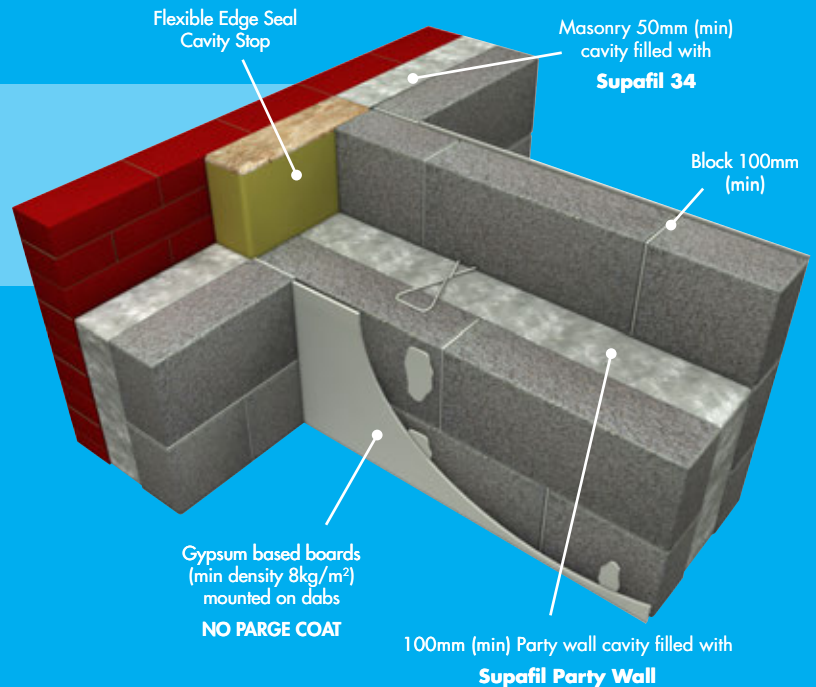
The Party Wall Full Fill Blown Solution

ROBUST DETAIL E-WM-28[™]

Masonry, Light weight aggregate block work, min. 100mm cavity

- E-WM-28 is the first unique Supafil party wall blown wool Robust Detail solution
- Contributes to a zero effective U-value when compiling SAP calculations
- Efficient and quick installation by approved technicians
- Dry installation process
- No product storage on site
- No parge coat required
- Fully fills the cavity

For full information on E-WM-28 visit Robust Details website
<http://www.robustdetails.com/TheHandbook/RobustDetail/E-WM-28>



QUICK



CLEAN



SUSTAINABLE



COST EFFECTIVE



Technical Support Team

TEL: 01744 766 666

technical.uk@knaufinsulation.co.uk

www.knaufinsulation.co.uk/pb0914

KINE2431ADV-V0814

KNAUFINSULATION
it's time to save energy

ISOVER INSULATION – Sustainable Residential Solutions

ISOVER Saint Gobain is a global leader in sustainable insulation solutions, creating efficient thermal and acoustic insulation solutions to design energy efficient constructions – providing safe comfort for users and to helping to protect the environment.

ISOVER have just launched their new ISOVER Residential Product and Solutions Guide which is a Complete Guide to Sustainable Residential Solutions across New Build and Renovation.

You'll find a comprehensive overview of our solutions and plenty of other handy information including:

- Building Regulations: Northern Ireland & Republic of Ireland
- Applications Guides: Pitched Roof, Walls, Floors including U Value Calculations
- Solutions & Installation Guides: Airtightness, Drylining, Attic and Rafter Solutions
- Products & Systems: A Guide to our full Residential Range
- Reference Projects: Case Studies from our ISOVER Energy Efficiency Awards



- Technical Academy: Technical Team and ISOVER Training Courses
- ISOVER Demonstration and Installation Movies: Links to our suite of YouTube Demos

A digital version of this guide is available on our website www.isover.ie

For more information on our sustainable insulation range and Self Build or Renovation Solutions log onto www.isover.ie.

ISOVER
SAINT-GOBAIN

Isover Ireland
Tel: +353 1 6298400
info@isover.ie
www.isover.ie



ISOVER G3 TOUCH
MINERAL WOOL
INSULATION



Looking to Insulate?

Try ISOVER G3 Touch –
High Performance, Soft Touch, Recycled!



Awarded the Highest
Standard for Indoor Air Quality



Our TECHNICAL TEAM
are here to help & advise
1800 744 480
NI Phone
0845 399 0159

ISOVER
SAINT-GOBAIN

Sustainable insulation solutions

www.isover.ie

Thermal breaks in structural connections

The thermal insulation provided by the building envelope is key to energy efficiency, but where the envelope is penetrated, thermal bridges reduce it. Here, Andrew Way, Manager of Light Gauge Construction and Product Assessment at the SCI outlines how thermal breaks can solve the issue...

Steel as a material has many advantageous properties which enable it to be used successfully in a wide range of structural applications.

However, in some situations the relatively high thermal transmittance of steel can be a disadvantage. Energy efficiency is an increasingly important parameter in the design of buildings. The thermal insulation provided by the building envelope is key to energy efficiency, but where structural steel elements penetrate the envelope, thermal bridges lead to local heat losses that reduce the efficiency. Thermal breaks can be provided in structural connections to reduce the heat losses through the steel elements.

The Steel Construction Institute (SCI) and Farrat Isolevel Ltd have been working together to establish the structural and thermal performance of thermal break materials, and the implications of including thermal break plates for the design of structural steelwork connections. Two thermal break materials were considered in this project; Farrat TBK and Farrat TBL. Thermal break plates are used between flanged connections of internal and external steelwork, or internal concrete and external steelwork to reduce thermal transmittance through the connection to reduce cold bridging.

SCI have produced a comprehensive report that describes the structural and thermal properties of the Farrat thermal break materials TBK and TBL. The properties are supported by test data and have been confirmed by independent review carried out by SCI. From the test data for TBK and TBL, SCI has derived resistance values suitable for use in structural

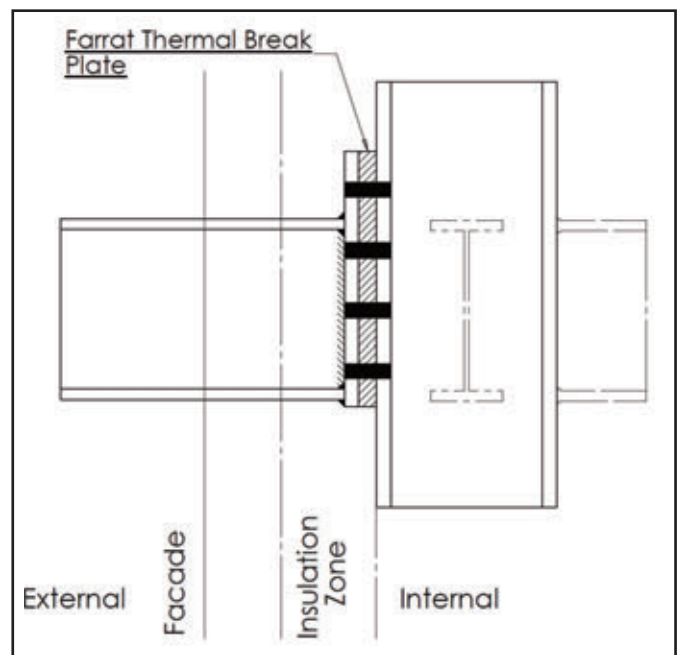


Image 1: Thermal break plate in steel beam to steel column connection

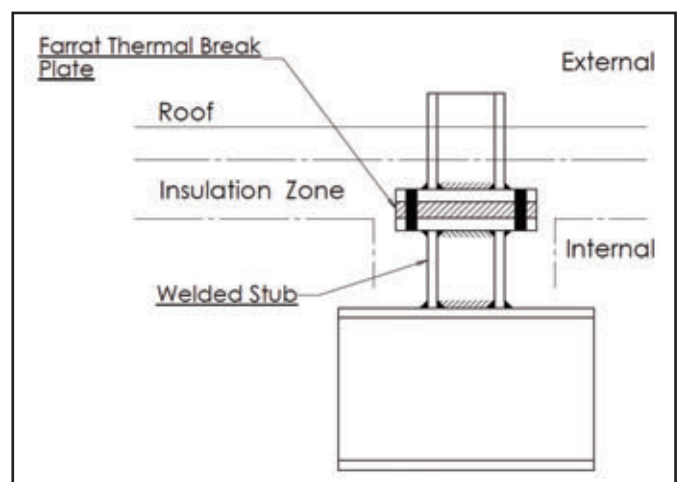


Image 2: Thermal break plate in steel post to rafter connection



Andrew Way
Manager of Light Gauge Construction and
Product Assessment
 SCI (Steel Construction Institute)

design. Statistical analytical methods have been used to determine characteristic values and partial factors have been applied to obtain design values.

The test programme was conducted in accordance with European standards and included:

- Compressive strength;
- Elastic modulus;
- Thermal conductivity;
- Density;
- Water absorption; and
- Long term creep.

SCI determined a set of recommended design checks which should be used when thermal break materials are used in structural connections. The design checks include:

- Compression resistance of the thermal break;
- Connection rotation due to short term compression of thermal break;
- Connection rotation due to long term creep;
- Bolt shear resistance for connections with packs; and
- Bolt shear resistance for connections with large grip lengths.

The conclusions of the work carried out by SCI, are that Farrat thermal break materials TBK and TBL can be used in structural applications provided that the appropriate structural design considerations are included, and the modifications to the connection design process as detailed in the SCI Report RT1584. As a result of SCI's independent review, Farrat thermal break materials TBK and TBL and the associated technical data presented in SCI Report RT1584 has been granted "SCI Assessed" status.

Details of the work can be viewed at:

www.sci-assessed.com and
www.farrat.com/thermal-break-connection-107.html

The work carried out by SCI and Farrat Isolevel Ltd has also been reviewed by NHBC. Farrat thermal breaks meet the NHBC's technical requirements and NHBC accepts the use of Farrat TBK and TBL for structural applications as set out in the SCI report RT1584. ■



.....
Andrew Way
Manager of Light Gauge Construction and
Product Assessment

SCI (Steel Construction Institute)

Tel: +44 (0)1344 636 577

a.way@steel-sci.com

www.steel-sci.com

Schöck performance values independently verified by the OISD

As a leading specialist in the provision of advanced solutions for thermal energy structural insulation, Schöck demands extremely high product performance standards. The company always ensures that all solutions exceed the necessary building regulations and that any performance claims are verifiable. To guarantee the accuracy of its current performance values, Schöck has submitted three of its main connectivity solutions for independent evaluation by the Oxford Institute for Sustainable Development (OISD), at Oxford Brookes University. One of the UK's largest research institutes dedicated to sustainable development research in the built and natural environments.

To identify areas where there is a risk of condensation and therefore mould growth in different design situations, a 'surface temperature factor' (f_{Rsi}) can be used. It allows surveys under any thermal conditions and compares the temperature drop across the building fabric, with the total temperature drop between the inside and outside air. The ratio is described in BRE IP1/06; a document cited in Building Regulations Approved Documents Part L1 and L2 and Section 6 in Scotland. Using the formula, the recommended (f_{Rsi}) value for offices and retail premises is equal to or greater than 0.5; and to ensure higher standards of comfort for occupants in residential buildings, equal to or greater than 0.75.

Three connectivity types were submitted for evaluation. Namely, concrete balcony connections (type K), steel balcony connections (type KS14) and steel beam connections (type KST). All three were tested using different construction methods. The purpose of the investigation being to determine the resultant heat loss, minimum surface temperature and therefore temperature factor (f_{Rsi}) to comply with UK Building Regulations Part L.

With the type K thermal break element, two situations were modelled. The first represents was a wall construction with balcony slab formed by

projecting concrete floor slab through wall with balcony door. The second is the same wall construction, but with a Schöck type K50 isolating the balcony slab from the floor slab with balcony door.

Results:	Without Isokorb	With Isokorb K50
Temperature factor (based on wall surface)	0.725	0.912

The results obtained show a temperature factor of 0.725 for the connection without Isokorb and 0.912 for the connection with Isokorb. As in the UK, the temperature factor (f_{Rsi}) must be greater than or equal to 0.75 for residential buildings, the type K50 exceeds these values and meets the requirements of Building Regulations Approved Documents L1 and L2. The result for the model with no connector was a failure in this application.

The type KS14 modelled four situations. (1) Direct connection of balcony support bracket to concrete floor slab; (2) a 10mm 'thermal pad' using welded endplate on balcony support bracket; (3) a 20mm 'thermal pad' using welded endplate on balcony support bracket and (4) a KS14 unit connecting balcony support bracket to concrete slab.

Results:		
Description	Min surface temp °C	Temperature factor f_{Rsi}
No balcony connection		0.949
Model 1 Direct connection	13.62	0.681
Model 2 Pad connection 10mm	14.26	0.713
Model 3 Pad connection 20mm	14.11	0.706
Model 4 KS14 H200	18.07	0.904

(All of the images show display Fig numbers as they appear in the published OISD report).

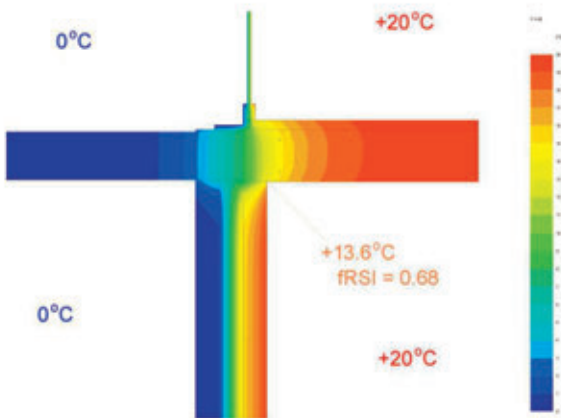


Fig 8. Direct connection (Case 1). This detail **DOES NOT** conform with UK Building Regulations Part L requirements for minimum temperature factor in dwellings ($f_{RSi} = 0.75$)

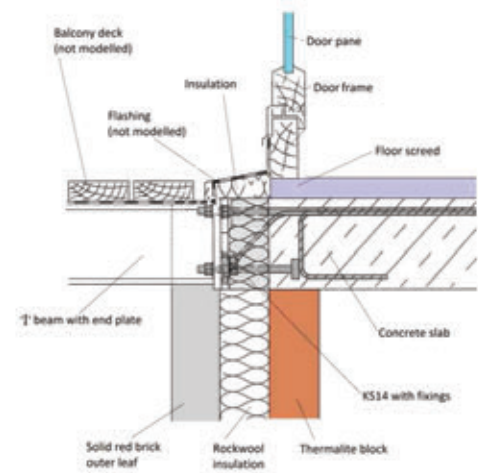


Fig 2. Schöck KS14 unit used with masonry wall and concrete slab

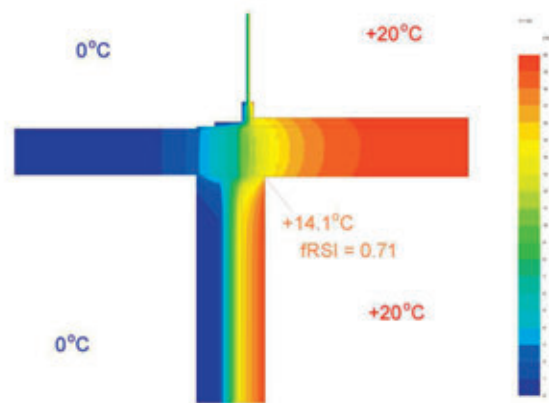


Fig 10. 20mm pad connection (Case 3). This detail **DOES NOT** conform with UK Building Regulations Part L requirements for minimum temperature factor in dwellings ($f_{RSi} = 0.75$)

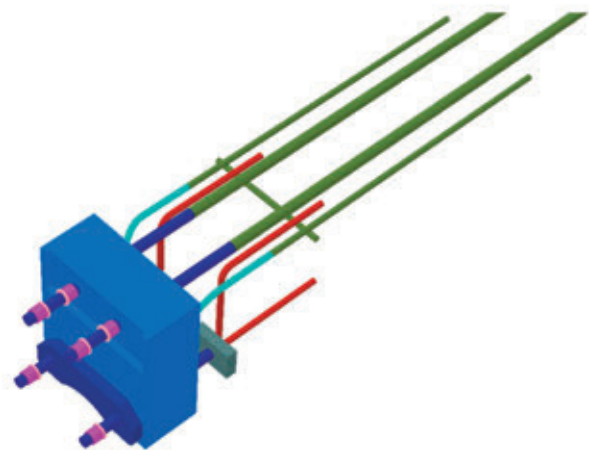


Fig 3. The KS14 unit SOLIDO model (surrounding construction omitted for clarity)

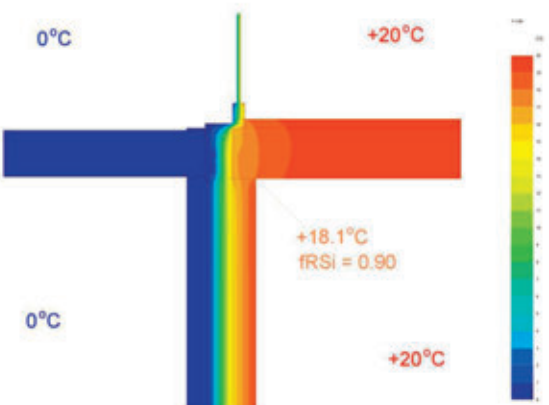


Fig 11. KS14 H200 connection (Case 4) where this detail **DOES CONFORM** with UK Building Regulations Part L requirements for minimum temperature factor in dwellings ($f_{RSi} = 0.75$)

It is evident that the performance of the Isokorb KS14 is the only solution, with $f_{RSi} = 0.904$, to exceed these values by some margin and will therefore meet the requirements of Building Regulations Approved Documents L1 and L2. Further, the results demonstrate that where no unit is used ($f_{RSi} = 0.681$) and also with the 10mm and 20mm pad connections ($f_{RSi} = 0.713$ and 0.706 respectively) – all three would fail against the criteria required for residential buildings.

The third product to be studied was the KST module. A steel I-beam is assumed to pass through an 80mm layer of insulation, which could

represent a roof beam running through the building envelope to support an exterior canopy or overhang. Here three types of situation were studied. First an HEA200 I-beam separated by thermal isolator unit Isokorb KST16 and a HEA240 I-beam separated by thermal break unit Isokorb KST22. Second, a single HEA200 I-beam and a single HEA240 I-beam passing straight through the insulation layer. Third, an HEA240 I-beam divided by a PTFE 'thermal pad'.

Results:	
Description	Temperature factor f_{RSi}
Isokorb KST16	0.82
Steel I-beam HEA200 passing through insulation	0.51
Isokorb KST22	0.81
Steel I-beam HEA240 passing through insulation	0.50

The Isokorb KST16 and KST22 units, with $f_{RSi} = 0.82$ and 0.81 , are the only solutions to exceed the required values, whereas the results for the continuous beams and beams separated by PTFE pads are marginal/failures for commercial buildings and are definitely failures for residential buildings.

The independent test results from OISD therefore all verify the product performance standards claimed by Schöck, with the various Isokorb solutions exceeding the necessary building regulations.

Technical Support Data

For the **type K Isokorb**, SOLIDO software from Physibel was used to construct three dimensional models of the applications described, in accordance with BS EN ISO 10211:1 (1996) Thermal Bridges in Building Construction – Heat flows and Surface Temperatures, General Calculation Methods BSI, 1996. Half a unit was modelled about its axis of symmetry. Steady state solution was by means of the iterative finite difference method.

For the **type KS14 Isokorb**, SOLIDO v3.1 software from Physibel was used to construct three dimensional models of the applications described, in accordance with BS EN ISO 10211:1 (1996) Thermal Bridges in Building Construction – Heat flows and Surface Temperatures, General Calculation Methods BSI, 1996. Steady state solution was by means of the iterative finite difference method.

For the **type KST Isokorb**, TRISCO software from Physibel was used to construct three dimensional models of the applications described, in accordance with BS EN ISO 10211:1 (1996) Thermal Bridges in Building Construction – Heat flows and Surface Temperatures, General Calculation Methods BSI, 1996. Steady state solution was by means of the iterative finite difference method.

Full test results are available on request:

Type K **Report Reference:** **121212SCH**

Type KS14 **Report Reference:** **120927SCH**

Type KST **Report Reference:** **060814SCH**

The report findings are based on the basic standard detail with cavity wall below the slab and glazing above.

For the above and for your free copy of the Schöck Specifiers Guide and/or the Technical Guide, contact the company on 01865 290 890 or visit www.schoeck.co.uk



Schöck Ltd

Tel: 01865 290 890

Fax: 01865 290 899

design@schoeck.co.uk

www.schoeck.co.uk



Northern Ireland

Building Regulations

The Northern Ireland Building Regulations are legal requirements made by the Department of Finance and Personnel (DFP) and administered by 26 District Councils: <http://www.buildingcontrol-ni.com//assets/pdf/building-regulations-ni-2012.pdf> . The Regulations are intended to ensure the safety, health, welfare and convenience of people in and around buildings. They are also designed to further the conservation of fuel and energy.

DFP publish Technical Booklets for guidance in support of the Building Regulations: http://www.dfpni.gov.uk/index/buildings-energy-efficiency-buildings/building-regulations/content_-_building_regulations-newpage-3.htm . There is no obligation to follow the methods or comply with the standards set out in the technical booklets. You may adopt any form of construction you wish, however you will have to demonstrate to the satisfaction of district councils that the requirements of the building regulations have been met.

They allow the Department to set certain standards of performance and to provide a degree of predictability and certainty as to what methods and standards of building which, if followed, will satisfy the requirements of building regulations.

TECHNICAL BOOKLET B – Materials and workmanship:

http://www.dfpni.gov.uk/tb_b_guidance_booklet_2013_final_version.pdf

Including:

- Fitness of materials and workmanship
 - Urea formaldehyde foam
-

TECHNICAL BOOKLET C – Site preparation and resistance to contaminants and moisture:

http://www.dfpni.gov.uk/tb_c_online_version.pdf

Including:

- Site preparation and resistance to contaminants
 - Subsoil drainage
 - Resistance to moisture and weather
 - Condensation
-

TECHNICAL BOOKLET D – Structure:

http://www.dfpni.gov.uk/tbd_online_version.pdf

Including:

- Stability
 - Disproportionate collapse
-

TECHNICAL BOOKLET E – Fire Safety:

http://www.dfpni.gov.uk/tbe_online_version.pdf

Including:

- Means of escape
- Internal fire spread – Linings
- Internal fire spread – Structure
- External fire spread
- Facilities and access for the Fire and Rescue Service

TECHNICAL BOOKLET F1 – Conservation of fuel and power in dwellings:

http://www.dfpni.gov.uk/tb_f1_online_version.pdf and updated guidance here:

http://www.dfpni.gov.uk/amendment_to_technical_booklets_-_2014.pdf

Including:

- Conservation measures
 - Target carbon dioxide emission rate
 - Consequential improvements
 - Change of energy status
 - Renovation of thermal elements
 - Notice of air pressure test
 - Notice of commissioning
 - Notice of emission rate
 - Provision of information
-

TECHNICAL BOOKLET F2 – Conservation of fuel and power in buildings other than dwellings:

http://www.dfpni.gov.uk/tb_f2_online_version-2.pdf and updated guidance here:

http://www.dfpni.gov.uk/amendment_to_technical_booklets_-_2014.pdf

Including:

- Conservation measures
- Target carbon dioxide emission rate
- Consequential improvements
- Change of energy status
- Renovation of thermal elements
- Notice of air pressure test
- Notice of commissioning
- Notice of emission rate
- Provision of information

TECHNICAL BOOKLET G – Resistance to the passage of sound:

http://www.dfpni.gov.uk/tb_g_online_version.pdf

Including:

- Protection against sound from other parts of the building and from adjoining buildings
 - Protection against sound within a dwelling or room for residential purposes
 - Reverberation in the common internal parts of buildings containing flats or rooms for residential purposes
 - Acoustic conditions in schools
 - Sound insulation testing and notice of results
-

TECHNICAL BOOKLET H – Stairs, ramps, guarding and protection from impact

http://www.dfpni.gov.uk/tbh_online_version_pdf.pdf

Including:

- Provision of stairs in dwellings
 - Stairs, ladders, ramps and landings
 - Guarding
 - Vehicle loading bays
 - Protection against impact from and trapping by doors
 - Protection from collision with open windows, skylights or ventilators
-

TECHNICAL BOOKLET J – Solid waste in buildings:

http://www.dfpni.gov.uk/tb_j_online_version.pdf

Including:

- Solid waste storage
- Waste chute systems

TECHNICAL BOOKLET K – Ventilation

http://www.dfpni.gov.uk/tb_k_online_version.pdf

Including:

- Means of ventilation
 - Ventilation of car parks
 - Notification of testing and commissioning
 - Provision of information
-

TECHNICAL BOOKLET L – Combustion appliances and fuel storage systems:

http://www.dfpni.gov.uk/tb_l_online_version.pdf

Including:

- Air supply
 - Discharge of products of combustion
 - Warning of the presence of carbon monoxide gas
 - Protection of people and buildings
 - Provision of information
 - Protection of liquid fuel storage tanks
 - Protection against pollution
 - Prevention of smoke emission
-

TECHNICAL BOOKLET N – Drainage:

http://www.dfpni.gov.uk/tb_n_online_version.pdf

Including:

- Drainage systems
- Sanitary pipework
- Underground foul drainage
- Rainwater drainage
- Cesspools, septic tanks and similar structures

TECHNICAL BOOKLET P – Sanitary appliances, unvented hot water storage systems and reducing the risk of scalding:

http://www.dfpni.gov.uk/tb_p_online_version.pdf

Including:

- Provision of sanitary appliances
 - Sanitary appliances
 - Sanitary accommodation
 - Unvented hot water storage systems
 - Reducing the risk of scalding
-

TECHNICAL BOOKLET R – Access to and use of buildings:

http://www.dfpni.gov.uk/tbr_online_version.pdf

Including:

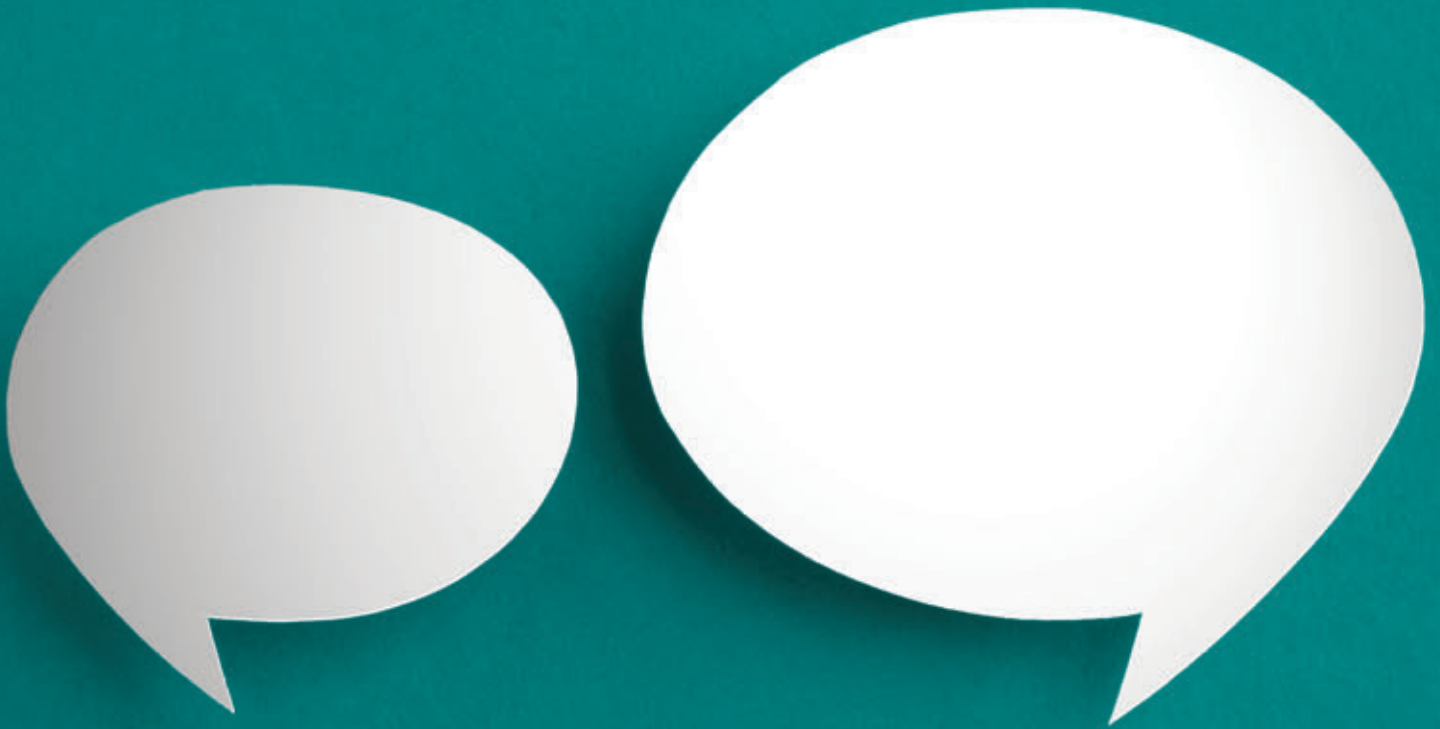
- Access and use
 - Access to extensions
 - Sanitary accommodation in extensions
 - Sanitary conveniences in dwellings
-

TECHNICAL BOOKLET V – Glazing

http://www.dfpni.gov.uk/tbv_online_version.pdf

Including:

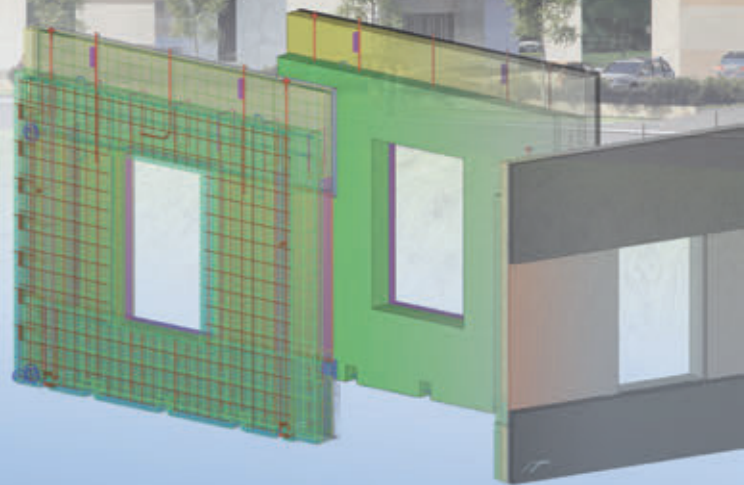
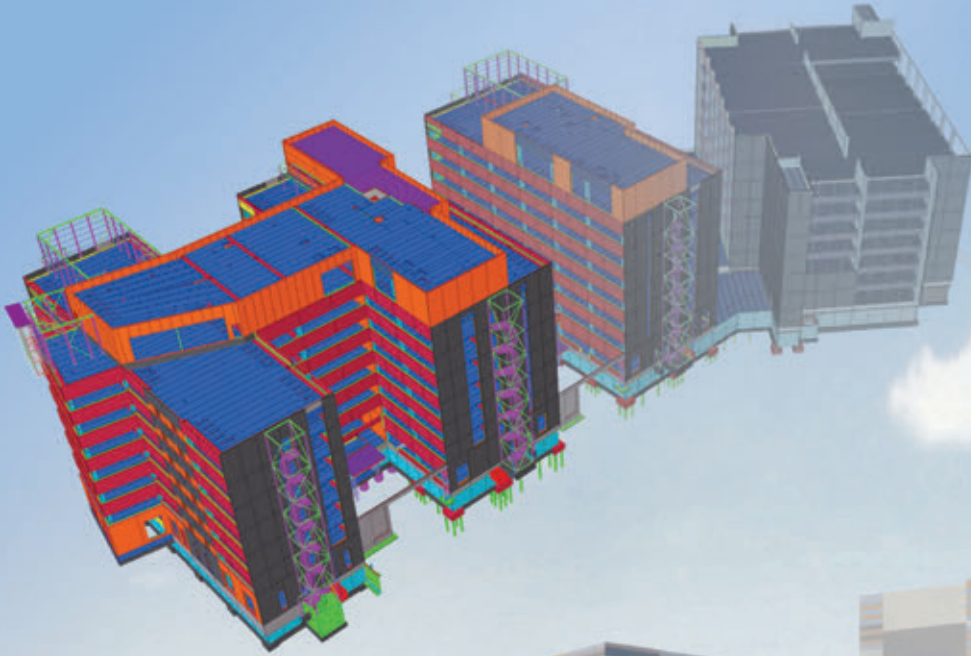
- Impact with glazing
- Transparent glazing
- Safe opening and closing of windows, skylights and ventilators
- Safe means of access for cleaning glazing



YOUR OPINION MATTERS

Whether you agree, disagree, or have another viewpoint with any news and features on our website, we want to hear from you.

Leaving a comment on any item on our website is easy, so please engage and join the debate today.



DO BIM BETTER WITH TEKLA

With the almost daily BIM announcements by clients, contractors and suppliers identifying their increased efficiencies and greater value by adopting BIM, not to mention the Government drive towards adoption by 2016, Tekla recognise that forming a BIM strategy alongside responding to CE Marking and ISO requirements can seem a daunting task.

We can help with the implementation of BIM within your organisation - advising on making the right business decisions, getting the most from your software and help with workflow procedures to ensure you are ready for the challenge ahead.

For further information on how Tekla can assist with BIM implementation and other consultancy services we offer, please call 0113 307 1200.

> www.tekla.com/uk