

Technical Extra

February 2011 | Issue 01

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Welcome to Technical Extra



Welcome to this first issue of *Technical Extra*, which supersedes *Standards Extra* and *Sustainability Extra*, and will incorporate technical information previously issued as separate documents such as technical newsletters, information sheets and guidance notes.

Technical Extra is the result of an extensive review and consultation on the way NHBC communicates technical information to the industry. Customer research has reinforced the need for relevant, up-to-date technical advice, with clearly set-out actions confirming exactly what is required, by when, and of whom.

To provide this clarity, and make it easier to navigate the content, *Technical Extra*, is sub-divided into four sections:

- Standards
- Regulations and Compliance
- Guidance and Good Practice
- Information and Support

Technical Extra will be published regularly throughout the year, with electronic copies available on our website at: www.nhbc.co.uk/Builders/Technicaladviceandsupport/

We hope you like the content, style and layout of this new publication. If you have any comments or feedback on this first issue, please email: technicalextra@nhbc.co.uk.

Ian Davis
NHBC Operations Director

What's going wrong with pitched roofs?



Who should read this: Everyone.

INTRODUCTION

Claims on pitched roofs have continued to rise. Our latest data from claims, inspections, and site surveys will help you understand what the issues are, and what steps can help to substantially improve this situation.

STANDARDS CHAPTER

NHBC Standards Chapter 7.2.

REQUIREMENTS

Last year 60% of all claims related to pitched roofs.

We've highlighted before in *Standards Extra* some of the claims issues experienced on pitched roofs. NHBC warranty cover was extended in 1997 to include pitched roof coverings. Unfortunately, current claims figures don't make for happy reading. In 2010, NHBC spent more than £11m on pitched roof claims, but repairs undertaken directly by builders would substantially increase this cost to the industry.

Also, the number of homeowners affected by what can often be disruptive damage and intrusive works is disappointingly high - more than one in every 60 homes built in the year 2000 had a valid pitched roof claim.

NHBC will be working closely with registered builders and the roofing industry over the coming months to ensure the problem areas are clearly understood. The following information identifies some of the key areas where intervention will help raise standards in roofing.

Our claims data shows more than half of pitched roof claims found valid in 2010 related to mortar issues.

We included questions relating to mortar mix in our latest survey of 'live' sites, and, worryingly, a large number were reported to be using incorrect mortar mixes on the roof. This has increased since we undertook the last roof survey in 2008.

Remember, the correct mix is 1:3, cement: sharp sand.

However, mortar issues don't affect all areas of the country to the same extent. Our survey suggested that almost all sites in Scotland are now being built with dry systems for ridges, verges and hips. Our claims figures appear to support this move to dry systems, with Scotland experiencing a smaller proportion of pitched roof claims per property covered.

Verges are a common feature of pitched roof claims. Verges should be bedded and pointed in one operation.

Failure to do this can lead to a thin layer of mortar pointing which is susceptible to frost action. Access to repair may not be straightforward; verges to the terraced properties pictured overleaf had failed, and although the end terrace house was relatively easy to scaffold, the other required a complicated and expensive scaffold arrangement to gain access.

So the messages are simple: where mortar is used, ensure the mix is correct (1:3 cement : sharp sand), bed and point verges in a single operation and consider moving to dry systems if possible. If you traditionally use mortar, when was the last time you considered the latest dry systems available?



REQUIREMENTS



Mortar failure to verges

Flashing and weathering detailing

We've previously highlighted the importance of detailing in ensuring that claims related to flashings and weathering are avoided. Typical examples where claims are being experienced and detailing is also found to be deficient during recent inspections include; abutments, dormers, chimneys and valleys.

For example, the photo below shows a lack of understanding of the consequences of failing to provide an adequate lap. At abutments, *NHBC Standards Chapter 7.2, page 12*, specify minimum overlaps to ensure that water cannot track between the materials.

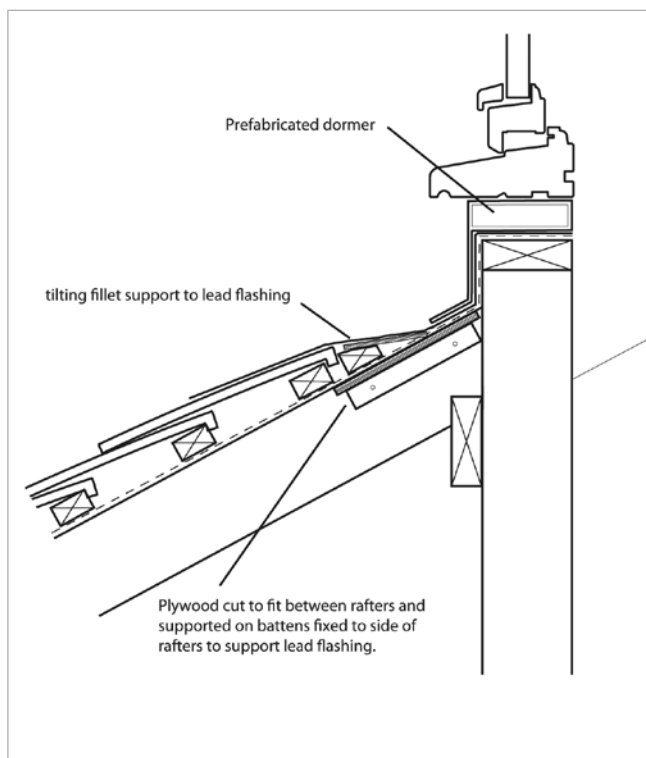


Underlay cut too short to form adequate lap when flashing is introduced

Another issue we've seen, both in claims and during inspections, is that of detailing around dormers. *Standards Extra 39*, (viewable at www.nhbc.co.uk/Builders/Productsandservices/StandardsExtra), highlighted the vulnerable area in front of the dormer if flashings are not supported.



Unsuitable detail leading to mortar failure and water ingress



Correct detailing, with flashing fully supported

Some weaknesses are easier to see than others as the examples opposite, associated with detailing around dormer and roof windows, show. The first photo clearly shows a gap between the tiles and mortar bedding, whilst tiles on the second image have been cut short.



REQUIREMENTS (CONTINUED)



Examples of poor detailing around roof windows and dormers

The example below is of a Dutch gable, and whilst initially this looks like a neat job, the long term durability must be considered. NHBC looks for saddle flashings to be provided here to prevent water running behind the hip tiles off the main roof areas through the inevitable cracks that will form between cement/sand fillet and tile.



Dutch gables - NHBC would expect to see saddle flashings here

The Lead Sheet Association provides helpful guidance on forming lead detailing. Further information is available at www.leadroof.org.uk.

Our inspectors are also reporting incorrect detailing at

the heads of valleys. On GRP valleys, a lead saddle should be fitted at the head of the valley to ensure a watertight junction is formed. With GRP valleys, specific installation requirements will be included in third-party assessments, for example BBA certificates. Ensure these are correctly followed; failure to do so could lead to difficult remedial works prior to plots being completed and occupied, or worse, damage leading to a claim and repairs if water ingress does occur.

With flashing and weathering, the devil really is in the detail. Make sure laps are adequate, and that detailing and installation of GRP products, such as dormers, chimneys and valleys maintain their waterproof integrity.

Mechanical fixings

NHBC has seen a reduction in the proportion of roof claims resulting from inadequate mechanical fixings on ridges, verges and hips. However, the results of our survey suggested that clarification would be helpful on the minimum requirements for additional fixings. Mechanical fixing of all ridge and hip tiles is recommended, but Chapter 7.2, Appendix B requires the following for single lap interlocking clay and concrete tiles; 'in all cases ridge or hip tiles, for a distance of at least 900mm from the face of rigid masonry supports, should be mechanically fixed.'

Ensure fixing schedules are used and review the fixing requirements in *NHBC Standards Chapter 7.2*; roofing materials in clause M5, sitework in clause S11 and S12, as well as the additional information in Appendix B.

Site inspections and common reportable items

Our claims experience has shown that roof claims are the result of a wide variety of issues across the roof structure, and, as such, no single key stage inspection will address everything. However, our inspectors are helping identify many issues, and over 10% of all reportable items recorded relate to the roof.

The table on page 6 highlights the most common reportable items recorded currently being identified in relation to *NHBC Standards Chapter 7.2, 'Pitched roofs'*.

As a result of the findings of our claims and inspection review, our inspectors will be discussing with builder site management teams their specific roofing proposals, NHBC's requirements, and the quality checks that need to be made. On all pitched roofs where a wet system of bedding is proposed, and where there is a high exposure or an increased risk due to design, we will be asking site managers to call out our inspectors on the first available roof, to inspect works during installation of the roof covering.



REQUIREMENTS (CONTINUED)

Reportable Item (RIs) and common defects from inspection records	NHBC Standards Chapter 7.2 reference	Number of RIs in 2010
Inadequate bracing and/or binders to trussed rafters - Ensure bracing is butted tightly to gable walls and is lapped and fixed in accordance with NHBC Standards.	Sitework clause S6, page 8	4000+
Inadequate lateral restraint straps to gable walls - The guidance is clear, you must extend lateral restraint straps over a minimum of three rafters and ensure adequate noggins are provided.	Sitework clause S3, page 7	3300
Incomplete thermal insulation to roof space - We've seen a number of instances where areas of roof insulation, particularly to loft hatches and room in roofs, has been omitted - make sure all involved are clear on what is required and where.	Sitework clause S14, page 13	2800
Holding down straps required to wall plates - Reportable Items associated with this have tended to relate to missing or inadequate fixings, check yours.	Sitework clause S3, page 7	1800
Inadequate fire stopping at separating wall/floor junction - To maintain integrity, eaves boxing must be fully fire stopped, we've also recorded gaps and missing stops to eaves.	Sitework clause S13, page 13	1700

It is also worth reminding readers that if they are using or specifying vapour permeable underlay's, from 1 January 2011, NHBC Standards require that the roof is ventilated at high level. See Chapter 7.2 - clauses D10 and S11.

Whilst NHBC sees many different defects affecting roof construction, the above highlights the main issues we're identifying during claims investigations and site inspections. Work with your roofing contractor to ensure these areas are correctly considered.

Helping the industry

NHBC is running free 'Pitched roof covering' seminars. Aimed at site managers, these will be held in March and April - see Section 4; Information and Support for dates and venues. We are also developing a pitched roof 'Trade Talk' as well as an e-learning package. If you are unsure of any aspect of roof detailing; check with your NHBC Building Inspector, or contact the Technical Helpline on 01908 747384, or email: technical@nhbc.co.uk.

YOU NEED TO...

- On all pitched roofs where a wet system of bedding is proposed, or where there is a high exposure or there is an increased risk due to design, site managers should call out our inspectors on the first available roof, to inspect works during installation of the roof covering.
- If you currently use or specify wet bedding, ensure mortar is 1:3, cement : sharp sand and consider moving to dry systems.
- Bed and point mortar to verges in one operation, as thin layers are susceptible to frost action.
- Make sure laps are adequate and that detailing and installation for GRP products, such as dormers, chimneys and valleys consider how the waterproof integrity will be maintained.
- Follow a fixing schedule and review *NHBC Standards Chapter 7.2*, including Appendix B, to ensure you know the minimum requirements.
- Check bracing and strapping are correct.

NHBC STANDARDS

NHBC Standards 2011



Who should read this: Everyone.

INTRODUCTION

This article provides a summary of the changes in *NHBC Standards 2011*.

STANDARDS CHAPTERS

A new Chapter 3.1 on 'Low or zero carbon technologies', and major changes to Chapter 4.6, 'Vibratory ground improvement techniques'.

Minor changes have been made to the following Chapters: 1.1, 2.1, 4.1, 6.7, 7.1, 7.2 and 8.3.

MAIN CHANGES

If you normally receive NHBC's Standards but haven't received your copy of the 2011 edition, please call **0844 633 1000** and ask for '**Supplies**'.



In *Standards Extra 48*, we discussed some of the major changes to the Standards, including the introduction of Chapter 3.1 'Low or zero carbon technologies' and an update to Chapter 4.6 'Vibratory ground improvement techniques', viewable at: www.nhbc.co.uk/Builders/ProductsandServices/StandardsExtra/

The following is a list of changes made to specific clauses:

Chapter reference	Change
Chapter 1.1 'Introduction and Technical Requirements' - Technical Requirement R5	NHBC Standards 2011 were changed to refer to Eurocodes where these replace British Standards. The main change was to Technical Requirement R5 in Chapter 1.1 'Introduction and Technical Requirements' but additional references throughout all chapters have also been revised.
Chapter 2.1 'Concrete and its reinforcement' Appendix A	In Table 1, superstructure, cover dimensions for reinforced concrete have been revised to align with the British Standard.
Chapter 4.1 'Land quality - managing ground conditions'	A number of changes have been made throughout the chapter. There is a new flowchart on page 2 and 'validation' has been replaced by 'verification' to align with other authoritative documents on land quality.
Chapter 6.7 'Doors, windows and glazing' clause D4	A new requirement has been added to clause D4 to provide additional resistance to unauthorised entry to homes through certain types of wall construction.

For technical advice and support call **01908 747384** or visit www.nhbc.co.uk



MAIN CHANGES (CONTINUED)

Chapter 7.1 'Flat roofs and balconies' Appendix D	Following the guidance published in <i>Standards Extra 46</i> , this has now been incorporated into a new Appendix D. This deals with balcony access, weatherproofing and drainage.
Chapter 7.2 'Pitched roofs' clauses D11 and S11	Where vapour permeable underlays are used in pitched roofs, high level ventilation, at or close to the ridge, is required. This requirement applies to all vapour permeable underlays and takes precedence over any third-party assessments which may not require high level ventilation.
Chapter 8.3 'Floor finishes' clauses D4 and S3	The clauses have been amended to include guidance on how ceramic tiles should be laid on timber floors, to reduce the risk of them cracking due to movement.

YOU NEED TO...

- Check that you have received your copy of *NHBC Standards 2011*.
- Review the changes and ensure you follow the requirements which are now effective for homes whose foundations were concreted on or after 1 January 2011.

Independent assessments



Who should read this: Technical and construction directors and managers. Architects and designers. Site managers.

INTRODUCTION

New or innovative materials, products or building systems, which perform critical functions must be adequately assessed.

STANDARDS CHAPTERS

NHBC Standards Chapter 1.1; Technical Requirement R3.

REQUIREMENTS

When considering the suitability of new or innovative materials, products or building systems which perform critical functions, NHBC looks for compliance with Technical Requirement R3 as set out in Standards

Chapter 1.1 'Introduction and Technical Requirements'. This relates to satisfactory assessment by an appropriate independent approvals authority accepted by NHBC, including: British Board of Agrément (BBA), Building

REQUIREMENTS (CONTINUED)

Research Establishment (BRE) or an alternative authorised body.

In accordance with Technical Requirement R3, an alternative body should be capable of providing satisfactory assessment to effectively manage technical risk.

In respect of suitable alternative bodies, NHBC has been approached by BDA Keuringsinstituut B.V. from Gorinchem in the Netherlands to enquire if we would accept their testing and certification of materials, products and building systems as being compliant with Technical Requirement R3. Our initial view was rather cautious as BDA appeared to be more of a test house.

However, we have worked with BDA over recent months to address our concerns, which resulted in BDA entering into an agreement with Kiwa, a Dutch company, who are very experienced in construction related certification. This agreement enabled BDA to provide the testing expertise and being supported by Kiwa to provide the assessment and certification expertise.

A 'pilot product' has now undergone satisfactory full assessment through the BDA/Kiwa scheme. The product is known as 'Breather-Foil FR' from Yorkshire Building Services Ltd, and the testing and assessment was completed in December 2010. The combined input results in a BDA Agrément + Kiwa KQ Certificate and the reference for the Breather-Foil product is 58386/01, due to be launched early 2011. The product will then be acceptable to NHBC as long as it is used in accordance with the certificate.



Commencement of heat cycle to upper surface of large sandwich panel



Heat cycle getting up to maximum temperature



Typical BDA Agrément and Kiwa Certificate

YOU NEED TO...

- With immediate effect, ensure new or innovative products that perform critical functions have satisfactory assessment by an appropriate independent approvals authority accepted by NHBC.
- Contact NHBC technical helpline **01908 747384**, or email: **technical@NHBC.co.uk** for clarification if you are unsure of NHBC's requirements.

REGULATION AND COMPLIANCE

The party wall bypass – how to comply



Who should read this: Everyone.

INTRODUCTION

Since the introduction of Part L 2010, the issue of party wall U-values has caused some confusion and discussion, not least of which amongst building control surveyors, trying to work out what would be acceptable, what materials can be used, and how they should be installed.

As you would expect, there are some solutions being developed and guidance now being issued, and from the perspective of achieving compliance with Part L 2010 and Part E 2006, the following guidance provides some options when considering party wall constructions.

CHANGES TO REGULATIONS

Approved Document L1A; England and Wales.

REQUIREMENTS

To outline the problem, SAP 2009 is used to demonstrate compliance with Part L 2010, and within SAP there are three options for cavity party walls as indicated in Approved Document L1A:

Party wall construction	U-value (W/m ² k)
Unfilled cavity with no effective edge sealing	0.5
Unfilled cavity with effective edge sealing around all exposed edges and inline with insulation layers in abutting elements	0.2
A fully filled cavity with effective sealing at all exposed edges and inline with insulation layers in abutting elements	0.0

Note: For reference purposes, a solid party wall has a U-value of zero.

Providing edge sealing to the cavity should in theory be straightforward, not forgetting the principle that you need to provide an effective edge seal as well as maintain acoustic separation. A flexible material should be used – membranes or non-rigid insulation are acceptable, and this sealing should be placed at the top and bottom of the cavity, as well as at intermediate floors in blocks of flats. The key here is careful detailing and good workmanship on site. Edge sealing to

intermediate floors increases the number of bridging points for mortar across the cavity, so care should be taken here, as well as detailing fixing of the materials used, as often this can present a sound path. Of course, the edge sealing material also has to provide an effective edge seal, so the installation at each junction will need to be of good quality.

So, where is the problem? Well, the complication arises when you propose to install insulation to the cavity and

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REQUIREMENTS (CONTINUED)

then you apply the requirements of Part E to party walls. If you are undertaking sound testing, then you will need to ensure your design will pass a test, which will require an acoustic consultant and some careful detailing. If you are using Robust Details however, the introduction of insulation to the cavity could cause you a problem, as up to now, this construction would mean the Robust Details guide may not be followed, and you would have to revert to sound testing.

However, Robust Details and MIMA, the Mineral Wool Manufacturers Association, have published updated guidance on fully filled cavities. Website details are listed in 'Information and Support'.

Traditionally, SAP calculations and the related U-values were used to evaluate the heat transferring directly through the warm inside to the cold outside. Party walls that separate one dwelling from another did not form part of this assessment, as the temperatures on both sides were assumed to be roughly equal.

However, recent research¹ has identified that although there is no real thermal transfer through the separating wall, heat passes into the colder cavity and rises up and out the top. Then, as in a chimney, this air movement draws in even colder air from the ends of the cavity, which leads to a greater temperature differential and more heat being drawn from the rooms on either side. The research has determined that this heat loss is equivalent to that lost through a wall with a U-value of $0.5 \text{ W/m}^2\text{k}$ - hence the default value in Part L.

The U-values in Table 3 of Approved Document L1A are not calculated using the thermal resistance of the wall materials, so using more thermally efficient blocks or adding thermal-laminate board will have no effect on the applied value.

Perimeter edge sealing

Sealing the edges of the cavity is the primary consideration - without this, no improvements can be claimed. Sealing the cavity at the junction with the thermal envelope and at each separating floor level in flats, prevents the ingress of the colder air, and was shown in the research to reduce the potential heat loss to a level equivalent to that of a wall with a U-value of $0.2 \text{ W/m}^2\text{k}$.

But before we get too carried away, let's not forget acoustics. Isolating one leaf of a party wall from the other isolates one dwelling from the other effectively. So closing off the cavity with insulated extruded plastic cavity closers for example, may seal the cavity, but it will also rigidly connect the leaves and provide a very unhelpful sound transmission path. Using flexible materials, such as membranes or non-rigid insulation across the end of the separating wall, poses no threat to the acoustic performance as long as any retaining clips do not span the cavity.

The Robust Details Handbook shows mineral wool closers at the ends of the separating element specifically to stop sound passing from one dwelling to the other via the external wall cavity (see Fig.1). However, some testing has been conducted by industry indicating that polythene-sleeved mineral wool can also provide an effective edge seal, but Building Control Bodies (including NHBC), will need to be satisfied that this or any other method is a 'robust' sealing solution under normal site conditions on each development.

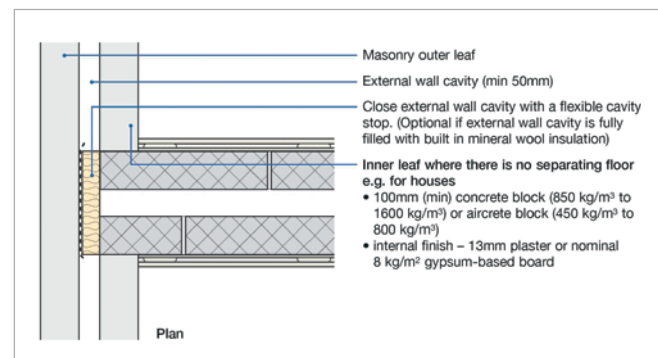


Fig.1 Robust Detail E-WM-4

The same applies to the horizontal sections at floor level, but although the flexible seal will not acoustically connect the wall leaves, mortar droppings or other debris collecting on top most certainly will, so care is needed to ensure these are kept clear.

Cavity fill

Moving up to the next level of thermal efficiency requires that we look at the cavity itself. By installing full-fill cavity insulation in addition to effective edge sealing, the research demonstrated that there was minimal-to-zero air movement in the cavity, meaning that now, a zero U-value can be claimed for the separating wall.

What is deemed as being a bona fide fully filled cavity?

The Building Control Alliance has agreed that: "A 'fully filled' cavity separating wall (or party wall) for the purposes of this regulation means a cavity wall which has been insulated so that no continuous air path communicates between the top and bottom of the wall, nor are there any uninterrupted air paths between flanking elements at either end of the wall, whether or not such junctions are edge-sealed, nor between any intervening structural junctions or service penetrations in the separating wall."

Although all Robust Details cavity separating walls allowed the potential for edge sealing, until now the majority have been specified with a clear cavity to maximise the isolation of the two leaves, so only the reduction to a U-value of $0.2 \text{ W/m}^2\text{k}$ was possible in these cases.

¹ *Evaluation of the Party Wall Thermal Bypass in Masonry Dwellings*, J. Wingfield, D. Miles-Shenton and M. Bell, School of the Built Environment, Leeds Metropolitan University, May 2009.



REQUIREMENTS (CONTINUED)

However, knowing that most developers would not be satisfied with anything other than a zero U-value solution, manufacturers and trade associations have been undertaking extensive testing in liaison with Robust Details Limited to prove the acoustic performance of cavity separating walls that are fully filled with insulation.

The result is that the October 2010 update to the Robust Details Handbook contains nine walls previously specified with a clear cavity, now having the option of mineral wool cavity insulation with a density of up to 40kg/m³ (refer to Table 1).

However, by fully insulating the cavity as the wall is being built, mortar droppings and other debris can no longer drop to sub-structure level – the insulation can even form ledges on which the debris can collect, thereby connecting the leafs and condemning the acoustic performance. Therefore, extra care and attention must be given to ensure debris doesn't settle within the width of the cavity.

RD separating wall reference	Cavity insulation
E-WM-1	Generic mineral wool max 40kg/m ³
E-WM-2	Generic mineral wool max 40kg/m ³
E-WM-3	Generic mineral wool max 40kg/m ³
E-WM-4	Generic mineral wool max 40kg/m ³
E-WM-5	Generic mineral wool max 40kg/m ³
E-WM-6	Isover's RD Party Wall Roll
E-WM-9	N/A solid wall
E-WM-10	Isover's RD Party Wall Roll
E-WM-11	Generic mineral wool max 40kg/m ³
E-WM-13	Isover's RD Party Wall Roll
E-WM-16	Generic mineral wool max 40kg/m ³
E-WM-17	Isover's RD Party Wall Roll
E-WM-18	Generic mineral wool max 40kg/m ³
E-WM-19	Generic mineral wool max 40kg/m ³
E-WM-20	Isover's RD Party Wall Roll

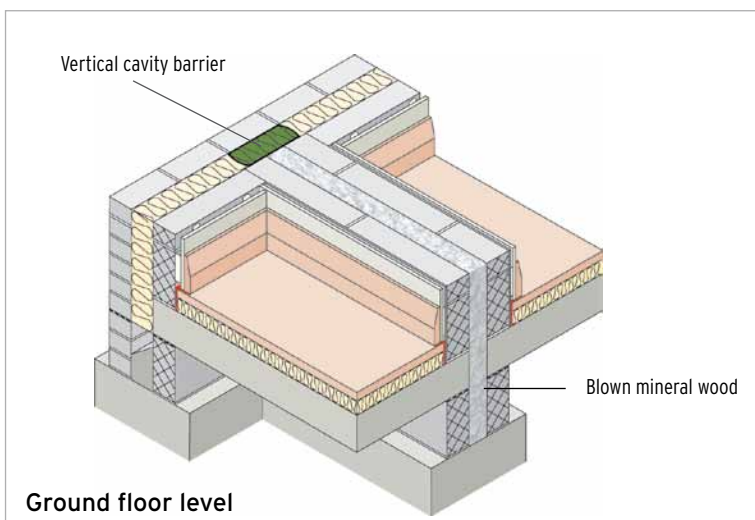
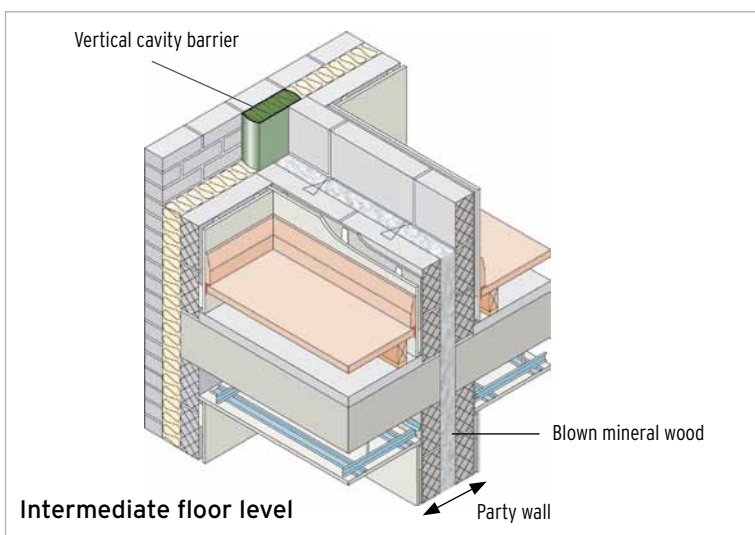
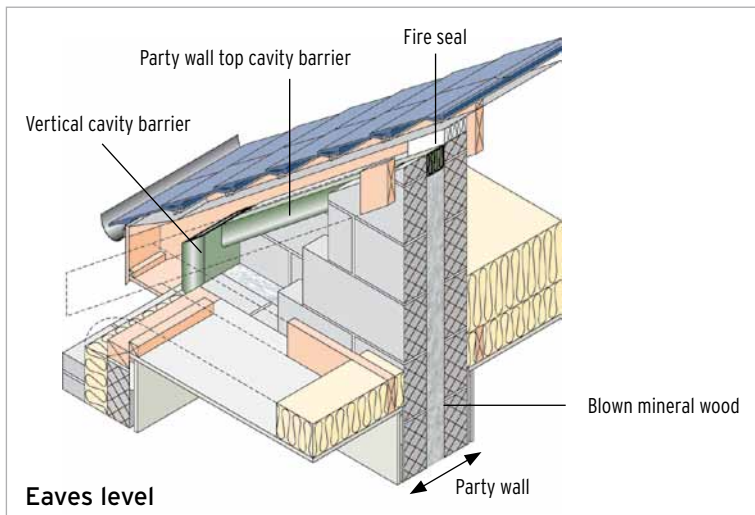
Table 1: Robust Detail walls and acceptable cavity insulation



REQUIREMENTS (CONTINUED)

Typical masonry construction details

Showing cavity barrier techniques



YOU NEED TO...

As we see more designs to meet Approved Document L 2010 requirements (England and Wales), NHBC Building Control will be looking at the following to ensure compliance:

- All materials/components used are installed in accordance with relevant manufacturers details and guidance. It is important to use the correct materials for the purpose.
- Any mineral wool insulation material used in a party wall is in accordance with recognised guidance, such as Robust Details. The density of the material should not exceed 40kg/m³.
- The cavity in the party wall is fully filled. NHBC Building Control has adopted the Building Control Alliance definition of a fully filled cavity.
- If an external wall is fully filled with insulation, a suitable detail will be needed to demonstrate compliance with Part L for the junction with the party wall. The cavity insulation cannot necessarily be relied on to provide an effective edge seal.
- Cavity barriers used in a party wall should be installed in accordance with relevant manufacturer's details. They should be continuous throughout their full height and length, and should overlap by a minimum of 50mm at junctions.
- Detailing and construction is critical to all the above, so good on-site monitoring will be required to ensure compliance.

Images courtesy of MIMA

REGULATION AND COMPLIANCE

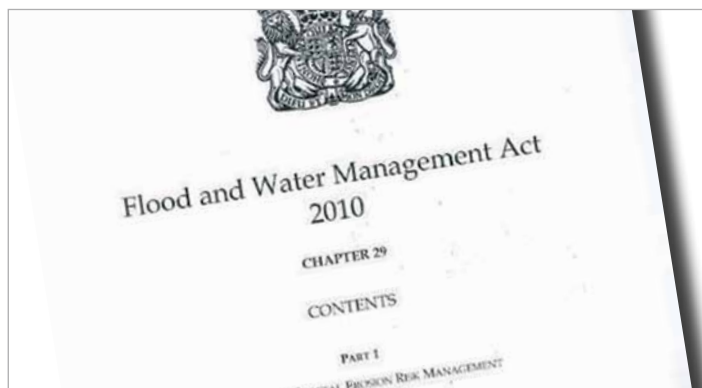
The Flood and Water Management Act – what does this mean for house builders?



Who should read this: Technical and construction directors and managers.

INTRODUCTION

The Flood and Water Management Act (FWMA) came into effect in April 2010, and applies in England and Wales only. This Act takes forward a number of recommendations from the Pitt Review into the 2007 floods. This legislation will be a significant change to the way the industry undertakes adoption of sewers and lateral drains, requirements for bonding, and much greater use of Sustainable Drainage Systems.



CHANGES TO REGULATIONS

The main changes are:

- From 1 October 2011, all lateral drains and sewers that connect to the public network will be adopted by the local water and sewerage company (WaSC). (Note: although mentioned in the F&WM Bill, the transfer comes under the 2003 Water Act).
- There will be no automatic right to connect new sewers to the public network in England and Wales.
- Retrospective adoption of all sewers and lateral drains already laid will occur on 1 October 2011.
- The Act introduces the requirements for developers of property to construct Sustainable Drainage Systems (SUDS) for the disposal of all surface water as the default.
- A new organisation, the SUDS Approving Body (SAB) will be created, that will have responsibility, as well as the Building Control Authority, for approving the design and construction of SUDS features and subsequently for owning and maintaining them.
- New standards for foul sewers, lateral drains and SUDS will be published, although the timetable for this is unclear, and standards for SUDS are likely to come after those for foul sewers and lateral drains.
- A Section 104 Adoption Agreement must be entered into by the WaSC and developer if the new sewer is to connect to the public network.

REQUIREMENTS

NHBC has made an assessment of likely impact to house builders with particular reference to the adoption of sewers, surface water drainage, sustainable drainage systems and bonding. This article provides guidance on the main changes, how they are likely to impact house builders and the approach NHBC has taken in response to the legislation.

How will this affect house builders?

A clear timetable for implementation is still awaited. Some of the key issues currently identified are as follows:

- Water companies are now bound to adopt new sewers, provided an Adoption Agreement has been entered into, changing the process and timescale for adoption.
- Adoption is likely to take place much earlier, probably in stages, as owners of newly connected homes receive their water bills.
- From April 2012, SUDS will be required on all new developments, wherever possible, requiring consideration of site layout, available land and soil conditions.
- Site planning will become problematic against unknown implementation timescale or standards.

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REQUIREMENTS (CONTINUED)

- There will be an increased requirement for bonds or other financial sureties to protect water companies and SUDS Approving Bodies (SABs). According to some sources, bonds could be as much as 150% of the actual construction cost secured by developers through the sub-contractor tendering process.
- There may be difficulty in obtaining sufficient bonding at commercially viable rates.
- WaSCs are likely to be more involved in the inspection process and will need to engage with the developer, communicating any issues prior to adoption. WaSC inspection fees will need to support this increased involvement of the water companies.
- There will need to be a warranty or maintenance period provided by the developer post-adoption for 12 months or to the completion of the site draining through that adopted sewer, and removal of the risk of construction works damaging the newly adopted sewer.



What is NHBC doing?

NHBC submitted a consultation response to DEFRA noting concerns with the timetable for implementation and extended requirements for non-performance bonds and the need for consultation on new national design and build standards.

To mitigate the potential impact to the industry of the proposed changes, not least in relation to bonding, NHBC has been working with the house building and water industries to identify alternatives. In this regard, NHBC proposes that an Accredited Contractor Scheme be

established for drainage contractors. As part of such a scheme, it is envisaged that WaSCs and SUDS Approving Bodies would be afforded protection against non-performance by way of insurance provision, which would remove the need for a separate bond. Key advantages that would be provided by this alternative approach include the following:

- NHBC believes that creating such an accredited scheme would help to raise construction standards and drive up good practice on site, to the benefit of the industry in general.
- No requirement for developers to provide non-performance bonds to WaSCs.
- WaSC's exposure to risk at the point of completion, when they will be obliged to adopt the works, will be ameliorated by provision of specific insurance.
- The proposed scheme reduces the complexity (legal and administrative) of having to provide multiple or staged bonds for different sections of the work (since the water company is likely to have to adopt the new sewer in sections as customers are connected and billed).



All photographs courtesy of Chuck Yu, ISBE Ltd.

From initial discussions with the industry and water companies, NHBC believes this proposal would receive wide spread support from WaSCs and developers.

YOU NEED TO...

- From discussions to date with the industry and WaSCs, NHBC believes this proposal would receive wide-spread support. Please refer to www.nhbc.co.uk/fwma for more information and future updates.
- If you would like to provide feedback on this topic or would like to be involved in future consultation opportunities, please send an email to ACS@nhbc.co.uk.

REGULATION AND COMPLIANCE

Flues in voids – new Technical Bulletin, TB 008



Who should read this: Technical and construction directors and managers. Architects and designers. Site managers.

INTRODUCTION

Gas Safe has published a new edition of Technical Bulletin TB 008, which deals with flues in voids. This new TB, applicable across the whole UK, became effective from 1 January 2011.

CHANGES TO REGULATIONS

The new TB 008 provides guidance to the Gas Safe engineer on how to proceed on existing installations that do not have inspection hatches.

MAIN CHANGES

For new installations the situation hasn't changed and inspection hatches are required in the ceiling to enable the Gas Safe engineer to visually check the flue within the ceiling void. It should also be noted that for England and Wales, Approved Document J now has similar requirements for access to such flues.

For existing installations that do not have inspection hatches, the new TB provides guidance to the Gas Safe engineer on how to proceed. He/she will need to carry out a risk assessment of the situation and, providing it passes the safety checks and carbon monoxide detectors are installed, the boiler can be left operating. The homeowner will be advised that they have until 31 December 2012 to have inspection hatches installed. After that date any Gas Safe engineer will have to classify the installation as 'At risk', and turn the boiler off if inspection hatches have not been fitted.

The NHBC website has more information on how the new TB affects both builders and homeowners.



YOU NEED TO...

- Builders should ensure that any new flues in concealed voids have adequate inspection hatches in the ceiling.
- For older installations, which do not have inspection hatches, see the NHBC website for guidance: www.nhbc.co.uk//Builders/Technicaladviceandsupport/Gasboilersfluesinvoidssafetyalert/

GUIDANCE AND GOOD PRACTICE

Porch posts uncovered



Who should read this: Technical and construction directors and managers. Architects and designers. Site managers.

INTRODUCTION

If, as they say, a picture is worth a thousand words, then the pictures of porch posts below tell their own story of why it has cost NHBC £500,000 over the past five years to put them right. And this does not include remedial work undertaken by the original builders.

GUIDANCE

NHBC requirements for porches are drawn from a number of Standards Chapters. But good construction practice shouldn't be forgotten just because it is a porch.

Failure of timber posts can occur at ground level due to surface water or moisture from the ground being absorbed by the timber and leading to decay. Posts built into the ground are never going to provide a durable solution. But posts bearing on, or into brickwork, concrete, or pavers could also suffer damage. Even if the timber has a piece of dpc sandwiched between it and the surface, any rainwater which runs down the post will almost certainly be taken up by the end grain of the post.

Softwood posts should be preservative treated in accordance with *NHBC Standards Chapter 2.3, 'Timber preservation'*, to give them the durability required. If the post is cut to length on site, the cut end must be treated with two liberal coats of a suitable colour tinted preservative. This is to visibly indicate that it has been done. But in any case, treatment alone will not overcome poor design.

So how can problems be prevented? Timber posts should not be buried in the ground or sunk into pockets which will trap water and moisture. Timber posts should

be put on metal connectors when installed on brickwork or concrete and screwed in place with non-corrosive screws. The metal support should provide a clear air path (minimum 10mm) to prevent the timber from absorbing moisture from the brickwork, pavers, concrete or the ground, as well as providing drainage and ventilation thus preventing decay.

All metal fixings shall be made from corrosion resistant materials such as stainless steel or mild steel which has been hot-dipped galvanised. Before use, verify with the manufacturer that the fixings you have chosen are suitable for use with treated timber. Prevent galvanic corrosion by using the same type of metal for both fixings and connectors.



Examples of porch post failures

YOU NEED TO...

With immediate effect, ensure that if posts are softwood they are preservative treated (unless you can show that the species is naturally durable) and treat any cut ends. Timber posts should not be buried in the ground set in a masonry pocket or be supported on the ground or hard surface where the timber will decay. Use durable connectors that will keep the timber posts away from dampness.



Who should read this: Everyone.

INTRODUCTION

The NHBC Foundation celebrated its fifth anniversary in January. The Foundation has now concluded almost 30 projects and all published reports are available to download free of charge at www.nhbcfoundation.org. Below are summaries of the four latest reports.

GUIDANCE

Introduction to Feed-in Tariffs NF23

The Climate Change Act 2008 sets a legally binding target for the reduction of the UK's greenhouse gas emissions. One of a number of measures to help achieve these targets, is the introduction of 'Feed-in Tariffs' (FITs) to incentivise small-scale low carbon electricity generation and the FITs scheme came into effect on 1 April 2010.

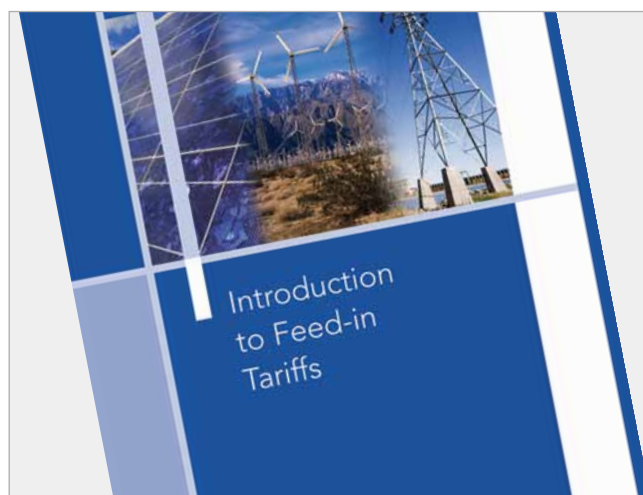
This guide explains how the FITs scheme works and its implications. It also illustrates financial returns and carbon dioxide emission savings through a number of worked examples, and identifies key issues and opportunities related to strategic implementation.

Work will soon begin on a related NHBC Foundation guide that will explain the Renewable Heat Incentive (RHI). Planned for introduction during 2011, the RHI will incentivise the generation of heat from renewable sources such as air-and ground-source heat pumps, solar thermal and biomass boilers.

Ageing and airtightness: How dwelling air permeability changes over time NF24

This research project involved returning to 23 homes 1-3 years after the original air leakage test had been carried out, and resubmitting each one to a re-test to see how the airtightness had changed.

As expected, the airtightness of most of the homes had decreased a little, but for one third the airtightness actually improved, presumably due to the installation of carpets and other floor finishes, etc. Although the sample is very small, the test results do show differences between types of dwelling, types of construction, types of heating system installed and the type of ventilation.



GUIDANCE (CONTINUED)



NF25 - Management of post-completion repairs: a best practice guide for home builders

NHBC brought together a 'task group' under the leadership of John Callcutt to research how home builders address concerns on quality, service and customer satisfaction with new homes.

This report is the first part of the output from that task group, and is based on the findings of surveys in the home-building industry into how it manages post-completion repairs. Whilst most of the industry does capture information on defects that occur in new homes and how to put them right, the capture and understanding of the costs involved seems less rigorous. This report contains some simple best practice advice based on the findings of the surveys.



NF26 - Home sale and handover: a best practice guide for home builders

This report is the second part of the output from the Callcutt task group, and is based on an investigation into homeowners' views on the processes they went through in buying their new homes, in comparison to what home builders say they are doing. This provides an interesting contrast between purchaser expectation and home builder delivery. The resulting best practice model, which is based on stated purchaser preferences as well as the steps and sequences that home builders need to adhere to, will help home builders assess whether their individual systems and procedures are meeting purchaser expectations.

The research indicates that there is a significant gap in both timing and content, between what information and support homeowners expect to receive during the buying process and what many home builders state they are providing. The report maps out a 'customer journey' giving simple and practical advice on where home builders may consider making changes to better align expectation with delivery, and so improve their purchasers' house-buying experience.

NHBC *FOUNDATION*

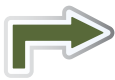
Housing research in partnership with BRE Trust

YOU NEED TO...

Although not mandatory, NHBC advises builders to adopt the recommendations in reports NF25 and NF26, and note the findings of reports NF23 and 24.

GUIDANCE AND GOOD PRACTICE

Brookwood Farm, Woking



Who should read this: Everyone with an interest in designing and building sustainable homes.

INTRODUCTION

Many people ask what homes built to the higher Levels of the Code for Sustainable Homes will look like, concerned that the ones they have seen are futuristic and wouldn't fit the local vernacular. Even more importantly, from the house builder's point of view perhaps, is a concern about how readily planning consent will be granted.

GUIDANCE

The latest development from William Lacey Group, a family firm with more than 100 years of house-building experience, shows how homes that represent Code excellence can nestle seamlessly into even the leafiest of the Home Counties' villages. Built in Knaphill, near Woking, Surrey, all of the homes on this development of ten semi-detached and two detached homes achieve Code Level 5. They do so through a carefully chosen and balanced combination of design, construction and technologies.



Brookwood Farm, Woking

Starting with the building fabric, the design team was keen to select a construction system that would ease the challenge of building to an air permeability target of 3 m³ /m².hr @ 50 Pa. Having weighed up the advantages of various alternatives, a decision was made to use an insulated concrete formwork (ICF) system. On the outside of the structure a leaf of brick cladding was erected to give the homes a traditional appearance.

In addition to an increased speed of construction, the ICF system also helped to minimise thermal bridging whilst delivering a highly insulated fabric.

Element	Construction type	U-value
Floor	Insulated beam and block	0.13 W/m ² K
Wall	Insulated concrete formwork	0.15 W/m ² K
Windows	Triple glazed, low-e glass, argon filled	0.80 W/m ² K
External doors	High performance triple sealed door sets	0.90 W/m ² K
Roof	Trussed roof with 450mm mineral fibre quilt	0.10 W/m ² K

Other features	
Thermal bridging	y-value = 0.04
Air permeability	Design target 3 m ³ /m ² .hr; as-built 2.12 m ³ /m ² .hr
Ventilation	Mechanical ventilation with heat recovery (MVHR)
Heating system	SEDBUK A-rated gas condensing combination boiler with an underfloor heating system
Kitchen appliances	All rated A+ or A

GUIDANCE (CONTINUED)

Apart from the walls, the construction is reasonably standard and consists of a highly insulated beam and block flooring system; for the roof, attic trusses were used, which had the advantage of allowing good access for the installation of the mechanical ventilation with heat recovery (MVHR) system and providing a secure area for the inverters required for the photovoltaic system.



MVHR system being installed



Photovoltaic tiles

Adopting the 'fabric first' approach to energy efficiency meant that reducing carbon dioxide emissions by the required 100% (compared with 2006 Part L) could be achieved entirely on-site by the use of photovoltaic (PV) tiles. Solar water heating panels are also fitted to the detached homes. Both systems are roof-integrated and therefore visually unobtrusive. Across the development, a total of 450 m² of PV has been installed, the total cost of which was around £280,000. It is estimated that the PV tiles should generate a total annual output of over 36,000kWh.

The homes are heated by means of A-rated gas condensing boilers, connected to an underfloor heating

system. Each room has its own temperature controller with an in-built LCD display of the current temperature that encourages occupants to minimise their energy use. Smart meters have also been installed, with the intention of further controlling occupants' use of energy for appliances, lights, etc.

Other measures adopted to help achieve Code Level 5 include the use of a rainwater harvesting system - a 5,000 litre underground tank is provided for each home which collects water from the guttering to provide a supply for both the WC cisterns and the washing machine. This system, together with low flow showers and taps, means that total water consumption is reduced to an estimated 80 litres per person per day (UK average is 150 litres per person per day). Valuable Code points were also achieved by designing the homes to comply with the Lifetime Homes standard.

The semi-detached homes were developed for shared ownership by Woking Borough Homes, a subsidiary of Thameswey Ltd. Retaining an interest gives the advantage that the homes can be monitored to establish their actual performance. The monitoring programme includes:

- fuel consumption - electricity and gas
- output from the photovoltaic tiles
- external weather
- internal temperature
- internal relative humidity level
- water usage - mains and the rainwater harvesting system.

The monitoring will be conducted over a full 12-month period to gain data for all four seasons.

The Brookwood Farm development is an excellent demonstration that complying with the highest levels of the Code is still achievable even with very traditional looking house designs. It reinforces the importance of carefully considering the design and specification of the building fabric at the earliest possible stage.



Insulated concrete formwork system

YOU NEED TO...

This article is for general interest only. There are no actionable requirements.

GUIDANCE AND GOOD PRACTICE

Natural building materials – of growing interest?



Who should read this: Everyone with an interest in alternative building techniques.

INTRODUCTION

The Code for Sustainable Homes and an increasing environmental awareness have helped to focus minds on the environmental credentials of the materials used in house building. BRE's Green Guide to specification, www.thegreenguide.org.uk, helps differentiate between 'everyday' materials, but attention is beginning to turn to alternative choices, including the materials that grow in the fields around us.

GUIDANCE

Established natural materials

Many different types of 'natural' materials are commonly used in construction (see box below), but the ones currently generating particular interest are cellulose-based materials.

Cellulose is the structural component of the primary cell wall of green plants, a complex carbohydrate insoluble in water, that provides strength and rigidity to plants. It is an odourless and colourless substance and its main sources for construction are trees, straw, hemp and jute.

Cellulose-based materials are not new. In fact, they have been in use for many centuries. Perhaps best known is thatch – reed, straw, heather and Elephant Grass (*Miscanthus*) laid as the weatherproof layer of roofs. Thatch has been widely used across the country, with the choice of raw material used depending on the regional location, and its use still continues on many new homes each year. Also there is cob, a combination of clay loam, straw and water mixed and moulded into a walling material. Although its use dates back as far as the 11th Century, we are not aware of it being used in many new homes...yet!

'Natural' materials used in construction

Sheep's wool – thermal insulation

Flax – thermal insulation

Paper (recycled and shredded) – thermal insulation

Reed mats – plastering mesh

Jute – carpet, plastering mesh and scrim

Sisal – carpet



Straw bale house during construction

Courtesy of Luke Sims, Quantity Surveyor,
North Kesteven District Council

GUIDANCE (CONTINUED)

Growing interest?

The materials that are stimulating the most interest at present are straw for use in straw bale construction and hempcrete, a mixture of stalks from the hemp plant and lime, which is available as factory-made blocks, or it can be cast in-situ or sprayed on site. Both straw and hemp have good thermal insulation properties but, because they tend to lack structural strength, they are normally used in conjunction with a structural timber frame.

A clear advantage of these materials is that they are renewable and so help minimise the use of finite resources. Also, their carbon footprint should be small as the 'embodied carbon dioxide emissions' are low, especially if they are grown close to the construction site, which is often the case. 'Embodied carbon dioxide emissions' are the emissions resulting from extraction and manufacture of construction materials, transport to site and assembly of building components to create a finished dwelling, and also include subsequent refurbishment and demolition.

Apart from their insulation properties, it is claimed that cellulose-based materials have advantages in that they create a healthier indoor environment because of their inherent hygrothermal/breathability characteristics. It is also suggested that they can act as a buffer to even out the swings in humidity that can occur inside homes during cooking, bathing, etc.



Hempcrete house during construction

It is important that materials used to build homes are carefully chosen, and clearly not all materials will be appropriate for use in a domestic environment or be able to withstand the harsh UK climate. Some of the obvious concerns related to the use of cellulose-based materials are the issues of moisture, rot and infestation, fire and maintenance:

Moisture - how will the materials dry out; what are their hygrothermal/breathability characteristics; what happens if they get wet after occupation due to plumbing leaks or external flooding; what effect do the choices of wall finishes (both external and internal) have?

Rot and infestation - what design precautions and/or treatments are necessary to protect the materials against decay due to rot and attack by insects and rodents?

Fire - how would the materials perform in the event of fire; do they satisfy Building Regulations requirements?

Maintenance - what are the long-term maintenance requirements; are the necessary skills available to carry this out?

We have only limited experience of the use of cellulose-based materials in new homes, yet clearly we need to be confident that homeowners' interests are looked after and that they are not treated as guinea pigs as the industry experiments with solutions. That said, NHBC will consider alternative approaches to construction and we must recognise the long-term history of use that cellulose-based materials have established.

NHBC's Standards include a 60-year durability requirement and so it is important for us to know how materials are likely to perform against this timescale and beyond. Mortgage lenders are particularly interested in this aspect of performance and indeed good long-term performance is, in itself, a core aspect of sustainability.

Also of interest is the serviceability of homes that are constructed using cellulose-based materials - the movement of these natural materials, both initial shrinkage and settlement and the seasonal shrinkage and expansion, could exceed that of conventional materials which may increase the need for ongoing filling and decoration.

Improving the evidence base

So, whilst recognising the advantages of cellulose-based materials and the part they may have to play in the future of sustainable construction, there are some valid concerns that do need to be addressed. A key element in doing so is independent assessment by organisations such as BBA and BM TRADA, and various products and systems are currently going through that process.



GUIDANCE (CONTINUED)

These assessments consider the products and systems 'in the round' and review all relevant aspects of their performance.

To help improve the evidence base, NHBC is involved with various projects that are using cellulose-based materials. Also, with financial support from the NHBC Foundation, NHBC is working with BRE and InCrops on a project reviewing current projects that have used cellulose-based materials. The project, which is scheduled to be completed in the spring, will draw examples together into a case study-based report. We are also aware of a joint project between BRE and Bath University which aims to provide simple guidance sheets to support the use of natural building materials.

Another rich source of information and evidence will be the construction of around 60 homes built with renewable materials which is being funded by the Government's Low Carbon Investment Fund allocated through the Homes and Communities Agency. This scheme 'aims to demonstrate the viability of these materials and act as a spur for the renewable construction materials industry' and is also helping to

engage the affordable housing sector in the low-carbon agenda. Many of the homes are currently under construction and some are already complete.



Completed straw bale house

Courtesy of Luke Sims, Quantity Surveyor,
North Kesteven District Council

YOU NEED TO...

If you are thinking of using natural building materials please contact NHBC's Standards and Technical team at the earliest opportunity.

GUIDANCE AND GOOD PRACTICE

Sustainability signpost



Who should read this: Those designing and building sustainable homes.

INTRODUCTION

These recent publications, all related to sustainability, will be of general interest.

GUIDANCE

Code for Sustainable Homes updated

Following a public consultation earlier in the year, the technical guidance to the Code for Sustainable Homes was updated in November 2010. The main changes are intended to align the Code with the emerging zero carbon policy, to streamline some issues and to resolve problems with the Code that have occurred in use.

A full summary of the changes and the revised Code Technical Guide are available at:

www.communities.gov.uk/publications/planningandbuilding/codeguidesummary2010

EST heat pump field trials

The use of ground- and air-source heat pumps has been increasing, and they can be considered as an option, particularly for homes that do not have a mains gas connection. This field trial was undertaken by the Energy Saving Trust to determine the key factors which impact the performance of domestic-scale heat pumps. The trial included technical parameters (such as system sizing and installation) and customer feedback and behaviour.

The findings provide interesting information about the factors that affect the success of domestic heat pump installations.

The report can be downloaded at:

www.energysavingtrust.org.uk/Media/node_1422/Getting-warmer-a-field-trial-of-heat-pumps-PDF

The energy 'performance gap'

As we approach the zero carbon housing future, there is growing interest in the 'gap' between the energy performance that is designed for and checked by the SAP assessor and what is actually achieved in practice. One recent study sheds light onto this: 'Low carbon housing: lessons from Elm Tree Mews'.

Published by the Joseph Rowntree Foundation, this report:

- evaluates the energy/carbon performance of the dwellings prior to occupation and in use
- analyses the procurement, design and construction processes that give rise to the performance achieved
- explores the resident experience
- draws out lessons for the development of zero carbon housing and the implications for government policy
- proposes a programme for change, designed to close the performance gap.

It is available to download at: www.jrf.org.uk/publications/low-carbon-housing-elm-tree-mews

YOU NEED TO...

- The Code changes will directly impact on those building Code homes in future.
- Take note if you are designing or building homes with heat pumps or thinking of doing so.
- Note the findings of the JRF report on energy 'performance gaps'.



WHAT'S GOING WRONG WITH PITCHED ROOFS?

Training courses

For details of 'Trade Talks' and proposals for e-learning, call **0844 633 1000** and ask for 'Training' or email: training@nhbc.co.uk.

Pitched roof coverings

Details on free seminar dates and venues: www.nhbc.co.uk/pitchedroofs

This topic is also on the agenda at this year's 'Building for tomorrow' seminars, see events below.

Downloads

Article in *Standards Extra* 39, Download at: www.nhbc.co.uk/Builders/ProductsandServices/standardsExtra/

Lead Sheet Association at: www.leadroof.org.uk

Contact details

Call your NHBC Building Inspector, or contact the Technical Helpline on **01908 747384**, or email: technical@nhbc.co.uk.

NHBC STANDARDS 2011

Contact details

If you have not received your copy of *NHBC Standards 2011*, please call **0844 633 1000** and ask for 'Supplies'.

INDEPENDENT ASSESSMENTS

Contact details

For more advice on independent assessments for new materials or processes, contact the NHBC technical helpline on **01908 747 384** or email: technical@nhbc.co.uk for clarification of NHBC's requirements.

THE PARTY WALL BYPASS - HOW TO COMPLY

Contact details

Robust Details Limited's Technical Helpline is available on **0870 240 8209**, or by email at technical@robustdetails.com.

For Building Control queries or projects, please contact our administration team on **0844 633 1000** and ask for 'Building Control' or email: buildingcontroladmin@nhbc.co.uk.

Downloads

For all Building Regulation matters, check out NHBC's TechZone at www.nhbc.co.uk/techzone

Robust Details Limited at: www.robustdetails.com

Mineral Wool Insulation Manufacturers Association at: www.mima.info

THE FLOOD AND WATER MANAGEMENT ACT

Downloads

NHBC information: www.nhbc.co.uk/fwma

View the Act at: www.opsi.gov.uk/acts/acts2010/ukpga_20100029_en_1.

The draft statutory instrument for Schemes for Adoption of Private Sewers can be viewed at: www.defra.gov.uk/corporate/consult/private-sewers/100826-private-sewers-condoc-dsi.pdf

The DEFRA consultation document can be found at: www.defra.gov.uk/corporate/consult/private-sewers/100826-private-sewers-condoc.pdf

Previous consultation papers, including the July 2007 consultation are available at: www.defra.gov.uk/environment/quality/water/industry/sewers/documents/private-sewer-consultation.pdf



Downloads

For older installations, which do not have inspection hatches, see the NHBC website for guidance.
www.nhbc.co.uk/Builders/Technicaladviceandsupport/Gasboilersfluesinvoidssafetyalert/

Check out NHBC's Techzone for information on Approved Document, Part J (England & Wales), at:
www.nhbc.co.uk/techzone

Contact details

Free copies of TB 008 are available from Gas Safe. Call 0800 408 5500, or email enquiries@gassaferegister.co.uk.

NHBC FOUNDATION



Downloads

For information on the NHBC Foundation and project reports, go to www.nhbcfoundation.org

NHBC's Air leakage factsheet is available to download at www.nhbc.co.uk/alt

Contact details

For details on how Part L 2010 regulations increase the number of air leakage tests required, or for advice on pre-completion testing, contact 'Air leakage' on 0844 633 1000 or email: airleakage@nhbc.co.uk.

NATURAL BUILDING MATERIALS - OF GROWING INTEREST?



For further clarification, contact the NHBC technical helpline 01908 747384, or email: technical@nhbc.co.uk.

SUSTAINABILITY SIGNPOST



Downloads

Code for Sustainable Homes updated
www.communities.gov.uk/publications/planningandbuilding/codeguidesummary2010

EST heat pump field trials
www.energysavingtrust.org.uk/Media/node_1422/Getting-warmer-a-field-trial-of-heat-pumps-PDF

The energy 'performance gap'
www.jrf.org.uk/publications/low-carbon-housing-elm-tree-mews

Contact details

NHBC can help at the pre-planning stage with sustainability reports and energy feasibility studies, as well as advice on planning conditions.

Contact 'Sustainability' on 0844 633 1000 or email sustainability@nhbc.co.uk.

FORTHCOMING NHBC TECHNICAL EVENTS

Building for tomorrow - March and April

View agenda, dates and venues at: www.nhbc.co.uk/bft2011

Pitched roof coverings - free seminars March and April

View dates and venues at: www.nhbc.co.uk/pitchedroofs

Brownfield land clean up - free seminar 6 April

View agenda and venue at: www.nhbc.co.uk/brownfieldcleanup

Fire design and the building life cycle - free seminar 6 April

View agenda and venue at: www.fdsconsult.com/cpd/

Useful contacts for technical information and advice

NHBC technical advice and support

Phone: 01908 747384

Email: technical@nhbc.co.uk

Web: www.nhbc.co.uk/Builders/Technicaladviceandsupport/

NHBC Standards

Buy online at:

www.nhbc.co.uk/NHBCshop/TechnicalStandards

Building Regulations

For guidance on issues relating to the Building Regulations check out NHBC's TechZone at www.nhbc.co.uk/techzone

Building Control queries

For Building Control queries, please call 0844 633 1000 and ask for 'Building Control', or email: buildingcontroladmin@nhbc.co.uk.

Engineering queries

For Engineering queries, please call 0844 633 1000 and ask for 'Engineering'.

NHBC Foundation research

The NHBC Foundation facilitates research and shares relevant guidance and good practice to the homebuilding industry.

www.nhbcfoundation.org

Zero Carbon Hub

The UK Government has set out an ambitious plan for all new homes to be zero carbon from 2016. The Zero Carbon Hub helps you understand the challenges, issues and opportunities involved in developing, building and marketing your low and zero carbon homes.

www.zerocarbonhub.org

NHBC Clicks & Mortar e-newsletter

NHBC regularly distributes information on a range of industry topics including new products and services, the building industry market, house-building news and house-building statistics. To receive this industry information, please register at:

www.nhbc.co.uk/NewsandComment/Registerfore-news/

NHBC Housing Developments e-newsletter

Housing Developments is a new, free resource developed specifically for the affordable housing sector designed to report on current industry developments and issues with expert insights into affordable and social housing.

To receive this e-newsletter, please register at:

www.nhbc.co.uk/HousingAssociations/AffordableHousingnewsletter/

General enquiries

For all other enquiries, including ordering products and services, please call 0844 633 1000, and ask for 'Sales'.

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