

Technical Extra

March 2013 | Issue 09

In this issue:

NHBC STANDARDS

Annual claims feedback	page 3
Roof tiling - good practice	page 6
Corrosion protection of steel	page 9

REGULATION AND COMPLIANCE

Latest changes to Building Regulations in England	page 10
---	---------

GUIDANCE AND GOOD PRACTICE

Biomass - safe storage of wood pellets	page 12
The use of recycled and secondary materials in residential construction	page 13
Mechanical ventilation with heat recovery (MVHR)	page 16
NHBC Foundation	page 17

INFORMATION AND SUPPORT

Training courses, downloads, contact details and NHBC technical events	page 18
--	---------

Foreword



Welcome to the first *Technical Extra* of 2013.

In this edition, we review NHBC's claims experience and introduce the areas that will be the focus of NHBC's standards-raising activity over the coming months.

We also reflect on some disappointing results from our latest pitched roof survey of live sites, and highlight where small improvements to construction practice can make a significant impact in improving standards and reducing future costs.

The 2013 edition of *NHBC Standards* came into effect for all homes where foundations were begun after 1 January 2013. If you require further copies of the Standards, please contact us at osupplies@nhbc.co.uk.

I can also confirm that, for the first time, the Standards is available in a new digital catalogue which can be accessed online. This will give you:

- easy-to-find content with a built-in word search
- the option to extract sections of the Standards to paste, print or forward to others if required.

NHBC registered builders can access this new version via the NHBC Extranet.

The digital version of the Standards allows us to provide links to a range of supplementary resource provided by NHBC and other organisations, and we'll be releasing updates to these links throughout the year. Linked information will include:

- the regular technical updates we give to industry via *Technical Extra*
- supporting guidance such as that given in Technical Guidance
- frequently asked questions, including those related to building control issues
- training material, ranging from in-company training to the online courses available from NHBC's Learning Hub.

Whilst some of this supporting material will be new, the digital format allows us to help you find current, relevant information quickly.

Recognising the importance of accessing information remotely on mobile and tablet size devices, NHBC is also committed to developing 'apps'. NHBC is pleased to announce that the first technical app will be based on our foundation depth calculator. I hope to be able to provide further information on the development of our technical apps later in the year. Further information will become available on our website www.nhbc.co.uk, and updates will be sent out via Clicks & Mortar, the monthly e-newsletter from NHBC.

Mark Jones

Group Head of House-Building Standards

NHBC STANDARDS

Annual claims feedback



Who should read this: Technical and construction directors and managers, architects, designers and site managers.

INTRODUCTION

NHBC's purpose is to 'Raise standards to protect homeowners'. We recently celebrated our 75th year protecting homeowners and supporting the house-building industry.

By understanding and feeding back the issues that are affecting the house-building industry, we're able to raise standards in new homes. Central to NHBC's role, this work is co-ordinated by our House-Building Standards department.

In this article, we provide some high-level feedback on the type of claims typically seen by NHBC. Building on the recent work to raise awareness of pitched roof claims, we'll be sharing more detailed information, and highlighting where you can get further help and guidance.

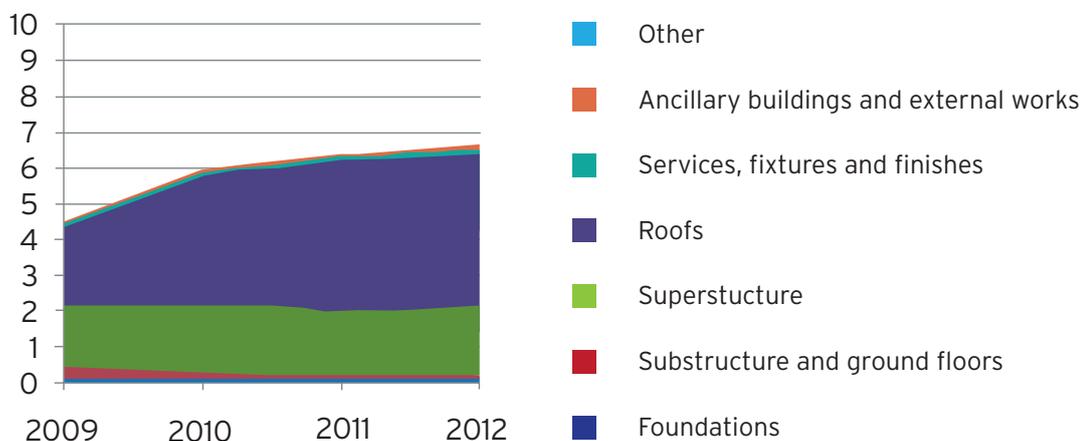
REQUIREMENTS

Claims in years 3-10

Back in *Technical Extra 01* (February 2011), we highlighted that 60% of all claims related to pitched roofs. The 10 years of cover provided by NHBC's Buildmark warranty means that, despite recent work through a co-ordinated campaign of activities to raise awareness of pitched roof issues, we'll see historic claims coming through for some time to come.

The chart below, showing the number of claims recorded against NHBC Standards per 1,000 plots under cover, indicates that the proportion of claims related to pitched roofs may have reached a plateau. Analysis has also highlighted that, for each generation (year) of build, pitched roof claims are typically peaking in the later years of cover, and that early performance of more recent generations appears to show signs of improvement.

Claims per 1,000 plots



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



REQUIREMENTS (CONTINUED)

Whilst improvements in early-year performance is encouraging, it's vital that we don't forget the lessons learnt, and that we adhere to the latest guidance given in the current version of Chapter 7.2, published in the 2013 edition of *NHBC Standards*. Indeed, we discuss disappointing results from a recent survey on pitched roofs later in this edition, and highlight areas where further improvements can be made.

After pitched roofs, where mortar and weathertightness issues have dominated, superstructure claims consistently account for the next highest number; at circa 30% of year 3-10 claims in recent years. Claims affecting the external envelope dominate; and two areas in particular:

- Cavity tray/damp proof courses (DPC).
- Render.

These areas account for almost half of all claims related to the external envelope by both number and cost.



Throughout 2013/14, NHBC will be focusing on these areas to raise awareness of the issues we typically find. Initial investigations confirm that, for cavity tray and DPC issues, common causes are attributed to inadequate joins to trays, trays and/or DPCs being incorrectly positioned or trays found to be missing

altogether. However, with render, de-bonding from the substrate is the most common cause recorded. Our investigations and guidance will focus on common causes for this and how it can be prevented.

In addition to focused campaigns throughout 2013/14 on cavity trays/DPCs and render, we'll continue our work on pitched roofs and focus on three other areas:

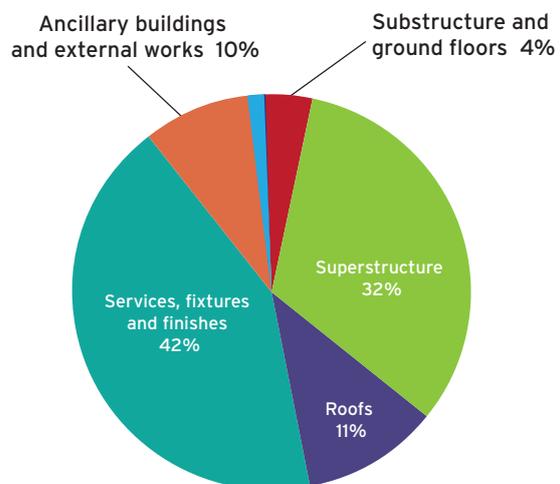
- Basements.
- Foundations.
- Groundbearing floors.

Claims in years 0-2

In the first two years of NHBC's Buildmark warranty we see claims relating to services, fixtures and finishes (Chapter 1.2 'A consistent approach to finishes' and Part 8 'Services and internal finishes') dominating.

Chapter 8.1 'Internal services' is also prominent, and our review of claims has highlighted that many of these are attributed to installation issues. We'll look to provide further information on this type of claim later in the year.

Claims raised in the first two years





REQUIREMENTS (CONTINUED)

Reports and further assistance

This introduction to claims feedback has highlighted the main areas of claims seen by NHBC, the areas industry can focus on to reduce claims and some of the campaigns we'll be using to help raise standards.

Feeding back our findings is an important part of this process, and we'll be developing improved reporting tools to highlight generic and specific industry and builder performance this year.

For builders with a higher claims experience, resulting from a larger number of homes under cover, House-Building Standards reports will highlight common claims and suggest specific actions which, if addressed, could potentially reduce the number of claims, improving homeowner satisfaction and reducing costs.

Where the volume of claims makes detailed analysis less meaningful, generic reporting on the type of issues typically affecting common areas of the build will help to highlight the issues and how these can be avoided.

NHBC Standards

For the first time, the Standards is available in a new digital catalogue which can be accessed online giving you:

- easy-to-find content with a built-in word search
- the option to extract sections of the Standards to paste, print or forward to others if required.

NHBC registered builders can access this new version via the **NHBC Extranet**.

The digital version of the Standards allows us to provide links to a range of supplementary resource provided by NHBC and other organisations, and we'll be releasing updates to these links throughout the year. Linked information will include:

- the regular technical updates we give to industry via *Technical Extra*
- supporting guidance such as that given in Technical Guidance
- frequently asked questions, including those related to building control issues
- training material, ranging from in-company training to the online courses available from NHBC's Learning Hub.

YOU NEED TO...

- Read the pitched roof article later in this edition and ensure that your sites are following the latest requirements of Chapter 7.2 - 'Pitched roofs'.
- Look out for further information on the type of cavity tray/DPC claims NHBC investigates and the guidance on how to avoid these.
- Note the other upcoming campaigns and supporting information and guidance, including reports. Further information will follow in future editions of *Technical Extra*.
- Access *NHBC Standards* online via the Extranet for easy access to the latest supplementary resources.

NHBC STANDARDS

Roof tiling - good practice



Who should read this: Technical and construction directors and managers, architects, designers and site managers, roofing subcontractors and tile manufacturers.

INTRODUCTION

NHBC Standards Chapter 7.2 'Pitched roofs' covers the design and installation of roof coverings together with guidance on how various details should be implemented on site.

Specific guidance has been developed in response to high levels of claims due to inadequate installation and design. When following the NHBC guidance, it is also important that the roof tile manufacturer's installation guidance be consulted and adopted as appropriate.

STANDARDS CHAPTER

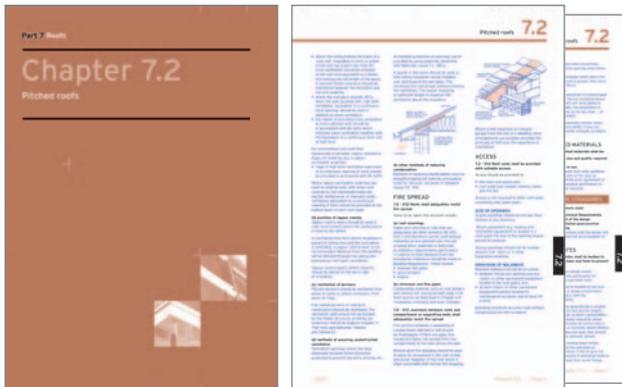
Chapter 7.2 'Pitched roofs'.

REQUIREMENTS

Disappointing feedback from recent survey

Changes to NHBC Standards were introduced at the start of 2012 following the high number of pitched roof claims NHBC had seen in recent years and, in particular, the performance of mortar.

A survey of around 3,000 ongoing sites was recently completed in order to help NHBC understand how well the industry has moved to adopt the new requirements. Unfortunately, some of the findings were disappointing, and highlight the importance of continued focus and attention on what, in many cases, are basic faults that can and should be avoided by good design and construction practice.



Issues highlighted by the survey include:

Mechanical fixing

Where ridges and hips are bedded on mortar, a third are still using mortar only. Chapter 7.2 states these areas must also be mechanically fixed.

Action: Ensure that all ridges and hips that are bedded on mortar are also mechanically fixed.

Mortar to verges

Where verges are bedded on mortar, less than half of the sites surveyed are using the correct method (either bedding and pointing immediately or bedded and pointed following initial 'stiffening' of the mix). Verge failure due to incorrect mortar placement is a common defect and expensive to repair.

Action: At verges, ensure tiles are bedded in one operation on roofing mortar having a minimum width of 100mm.



REQUIREMENTS (CONTINUED)

Correct mortar mix

The correct mortar mix could only be positively confirmed on two-thirds of the sites surveyed.

Action: Roofing mortar should be 1:3 cement:sand with plasticiser. The mix should be based on sharp sand with soft sand added to achieve workability. The proportion of sharp sand should not be less than one-third of the total sand content.

Fixing schedules

Fixing schedules should be used and available for inspection. Whilst this is an area that appears to have improved, almost a quarter of all sites surveyed did not have a fixing schedule available.

Action: Ensure a fixing schedule, including details to ridges and hips etc., is used and available on site for review.

Small cut tiles

Half of the sites surveyed were using small cut single lapped interlocking concrete tiles less than a half tile width, with a third fixing them with an adhesive not supplied by the tile manufacturer.

Action: Where possible, try to use setting out to avoid cut tiles. Where cut tiles are unavoidable, ensure they are at least a half tile width and use manufacturer's approved methods of securing the cut tile using either adhesives and/or a minimum of three mechanical fixings.

Valleys

Some valley tiles are being cut in situ, on the finished valley line. This potentially can damage the valley, and the tile dust will affect mortar adhesion.

Action: When cutting valley tiles, either do so off roof or set out and cut valley tiles two tiles back from the valley line in situ.

The survey did highlight that an increasing proportion of sites are moving to dry systems, reducing or removing some of the risks highlighted previously. However, a large number of sites still retain some element of mortar work to roofs.

Almost all sites surveyed in Scotland were using dry systems, and their use has increased by around 20% in England and Wales since the previous survey, undertaken in 2011. When using dry systems, it is vital to ensure that the correct system is specified for the pitch of the roof and that the tile and dry system components are compatible.



Working directly with the roofing industry

As part of our continuing work to improve the quality of pitched roofs, NHBC recently met with the major roof tile manufacturers, together with members of the National Federation of Roofing Contractors (NFRC) and the recently formed Roofing Tile Alliance (RTA).

The RTA is a working alliance of the members of the Concrete Tile Manufacturers Association (CTMA) and the Clay Roof Tile Council (CRTC). The aim of the RTA going forward is to promote the common interests of all roof tile manufacturers and work towards providing unified specifications to address roofing issues.

The meeting covered specification and site practice issues related to bedded and dry verges, including the fixing of cut tiles and use of verge clips. Proprietary dry verge systems were reviewed, with specific consideration given to their performance and specification. The NHBC's requirements for mechanical fixing of mortared ridge and hip tiles were considered in relation to individual tile manufacturer's solutions. Other items discussed included the use of coloured mortars, detailing at abutments on splayed bays and at chimneys, wet cutting of tiles, and fixing of cut tiles in valleys and on hips, together with certain regional roofing practices.



REQUIREMENTS (CONTINUED)

Action points were identified for all parties, and a further meeting of the group is planned to review the feedback and action taken since the first meeting, and consider further intervention following the recent survey results.

Revised inspection protocol

In *Technical Extra 01*, we highlighted the need for our inspectors to be called out to site to discuss with builder site management teams their specific roofing proposals, and inspect the first available roof where a wet system of bedding was proposed.

To further aid our builder customers, we continue to offer free 'pitched roof covering' training upon

request, and have a number of free and paid-for courses available on our website and via supplementary resources in the digital version of the Standards.

NHBC Standards 2013 edition

With regard to the recent publication of Standards 2013, we have become aware of a printing error in Chapter 7.2 'Pitched roofs'. In Clauses M5(k), S11(e) and table 1 of Appendix 7.2-A, where the text should read one-third a square symbol appears in error.

Please accept our apologies for this error and ensure that a value of $\frac{1}{3}$ is used where the square symbol appears.

YOU NEED TO...

- Ensure that all ridges and hips that are bedded on mortar are also mechanically fixed.
- At verges, ensure tiles are bedded on roofing mortar having a minimum width of 100mm and that these are bedded and pointed in one operation.
- Ensure roofing mortar is 1:3 cement:sand with plasticiser. The mix should be based on sharp sand with soft sand added to achieve workability. The proportion of sharp sand should not be less than one-third of the total sand content.
- Ensure a fixing schedule, including details to ridges and hips etc., is used and available on site for review.
- Where cut tiles are unavoidable, ensure they are at least half tile width and use manufacturer's approved methods of securing the cut tile using either adhesives and/or a minimum of three mechanical fixings.
- Note the further guidance on how to meet NHBC requirements in other editions of *Technical Extra* and also on the NFRC and individual roof tile manufacturer's websites.
- Make the amendment detailed above to *NHBC Standards 2013*.



Who should read this: Technical and construction directors and managers, architects, designers and site managers.

INTRODUCTION

NHBC is aware of a number of high-cost claims resulting from corrosion to external balcony steelwork, particularly in coastal locations. The main cause appears to be inadequate protection of steelwork. NHBC has reviewed the guidance for protection of steel and will be updating future editions of the Standards, as outlined below, to provide guidance for protection of steelwork in coastal locations.

STANDARDS CHAPTER

Chapters 6.5 'Steelwork' and 8.5 'Painting and decorating'.

REQUIREMENTS

NHBC Standards gives guidance for the protection of steel in Chapters 6.5 'Steelwork' and 8.5 'Painting and decorating'. Chapter 8.5 gives guidance for protection of external steel by referring to BS EN ISO 12944 'Paints and varnishes' and BS EN ISO 14713 'Protection against corrosion of iron and steel in structures'. The requirements of galvanised treatment that is given in Clause 8.5 - D2(c) is appropriate for external balcony steelwork in sheltered in land locations, but a higher level of protection is required in coastal locations.

BS EN ISO 12944-2 classifies atmospheric environments into 'atmospheric corrosivity categories': C1 to C4 represent very low, low, medium and high 'atmospheric-corrosivity' respectively, and C5-I very high (industrial), C5-M very high (marine) 'atmospheric corrosivity'. BS EN ISO 14713-1:2009 gives the corrosion rate for zinc galvanising, r_{corr} , based on one year's exposure to the corrosivity category.

For external steelwork in sheltered locations more than 500m from the coast, category C3 is recommended, and a galvanising rate of 460 g/m² should be applied. However, this may not provide suitable durability for locations within 500m of the coast where, in accordance with BS EN ISO 12944-2, category C5 will apply.

Where external steel is located in an environment categorised as C4 or C5, a zinc coating of 710 g/m² should be specified. Decorative finishes may be applied to galvanised steel following suitable preparation with a mordant wash.

YOU NEED TO...

Ensure that external steel on sites with an atmospheric corrosivity of C4 or C5 to BS EN ISO 12944, including sites within 500m from a coastal shoreline, is galvanised to a rate of 710 g/m².

REGULATION AND COMPLIANCE

Latest changes to Building Regulations in England



Who should read this: Technical and construction directors and managers, architects and designers.

INTRODUCTION

Following the consultation carried out in 2012, the Department for Communities and Local Government has announced changes to the Building Regulations in England. The changes are aimed at reducing the burden on house builders and the rest of the construction industry.

The changes only affect England and accepted energy buildings in Wales. The Building Regulations for new houses built in Wales are unchanged.

CHANGES TO REGULATIONS

Building Regulations in England.

REQUIREMENTS

With immediate effect

Provisions within Local Acts in England (which placed additional provisions on certain buildings over and above the minimum requirements of the Building Regulations) for warehouses (over 7,000m³), car parks and tall buildings (over 30m), were repealed on 9 January 2013. The provisions relating to fire and rescue service access have been retained.

If you have a project which is currently being designed or under construction and has been subject to any of the provisions being repealed, you may wish to consult with your design team to examine any implications that this new legislation may have. Any design changes brought about as part of this process should be submitted to NHBC Building Control in line with your normal processes.

For new buildings which will be occupied by public authorities, a new analysis must be provided to show that designers have considered the use of high-efficiency systems to provide heating and power for those buildings. Building control bodies will not be able to issue Final Certificates if this has not been received.

This comes into force for all buildings on 9 July 2013.

Changes from 6 April 2013

To reduce the burden on the construction industry, the Government has introduced further changes to the building control system:

Removal of the Warranty Link Rule

Since 2005, new homes built for sale or rent have had to have a designated warranty in place when using an Approved Inspector for building control. This was not the case if the local authority was providing building control. From April 2013, the Warranty Link Rule will be removed, freeing up any restrictions on the choice of building control body.

This change will affect all plots on Initial Notices submitted on or after 6 April 2013. Plots on Initial Notices submitted before 6 April 2013 will still be subject to the Warranty Link Rule.

Changes to Completion and Final Certificates

Public sector building control will be required to issue Completion Certificates where they are satisfied that work complies with the Building Regulations. This aligns the public sector requirement with that for Approved Inspectors. In addition, the wording on both Completion Certificates and Final Certificates is to be amended to clarify that the certificate is evidence, but



REQUIREMENTS (CONTINUED)

not conclusive evidence, that the requirements of the Building Regulations have been complied with. This reinforces the fact that the responsibility for compliance with the Building Regulations rests with the person carrying out the work.

New Approved Documents

Alongside the regulatory changes, three new Approved Documents will be published, as well as amendments to other existing documents. The biggest change is the publication of a new Approved Document K which brings together guidance from Part B, Part K, Part M and Part N of the previous regulations in respect of stairs, ramps, barriers etc. The new Part P contains guidance on a narrower definition of notifiable work and also suggests a method by which a competent DIYer can carry out work and have it tested by a competent third party.

Removal of statutory notifications

The system of statutory notifications when using a local authority for building control is being removed. From 6 April 2013, all building control bodies will be required to provide a service plan to their customers,

risk assessing inspection regimes according to the building type and informing the customer when they wish to inspect. NHBC Building Control customers will already be familiar with this process, which has been used effectively on all NHBC sites.

Changes from 9 July 2013

The Government has clarified the conditions around the renovation of thermal elements, and the specific thresholds over which action will be required if carrying out repairs or maintenance on existing buildings. If more than 50% of a particular element, or 25% of the building envelope, is affected by the repairs, the whole of that element or envelope must be upgraded to meet the thermal requirements set out in the regulations applicable at the time.

More information on all of the changes, transitional provisions and the effect on NHBC Building Control customers can be found on NHBC TechZone at www.nhbc.co.uk/techzone.

YOU NEED TO...

- Ensure you are aware of all changes, implementation dates and transitional provisions. (Some of the above changes to Building Regulations in England come into effect immediately).
- Discuss the effect of these changes on schemes registered with NHBC, by contacting your building control surveyor.

GUIDANCE AND GOOD PRACTICE

Biomass – safe storage of wood pellets



Who should read this: Technical and construction directors and managers, architects, designers and site managers.

INTRODUCTION

Biomass boilers fuelled by wood pellets can be used to provide heating and hot water in new homes. A recent safety notice from the Health and Safety Executive has highlighted potential dangers associated with the release of noxious gases, primarily carbon monoxide, from stored wood pellets.

GUIDANCE

The use of wood pellet biomass as a domestic fuel source has become more popular as a way of reducing carbon dioxide emissions when compared with the fuels traditionally used to provide space and water heating. Biomass boilers range from small appliances serving a single dwelling, perhaps housed in or adjacent to the dwelling, to large communal systems serving multiple dwellings, often housed in a large purpose-built plant room remote from the dwellings they serve.

Biomass boilers will typically use a significant quantity of fuel; even small boilers can use several tonnes of pellets per year. Wood pellets, the most common type of biomass fuel, are formed from compressed wood chips and sawdust. The pellets are commonly stored in the plant room either in a hopper or adjacent to the boiler. As the wood pellets naturally degrade, carbon monoxide gas is released. Carbon monoxide is colourless, tasteless and odourless and, if present in significant concentration, has the potential to be harmful.

NHBC has become aware of a few incidents relating to concentrations of carbon monoxide from large quantities of stored wood pellets. The Health and Safety Executive has released a safety notice entitled 'Risk of carbon monoxide release during the storage of wood pellets'. The safety notice draws attention to the dangers of storing wood pellets and offers safety advice to those who use, install, maintain or distribute wood pellet boilers and/or manufacture, store or distribute wood pellets.

Although the main focus of concern is on wood pellets stored in large quantities, it is possible that the concentration of carbon monoxide could reach dangerous levels when pellets are stored in quantities typically used in domestic situations.

NHBC has begun engagement with relevant parties to gain a more complete understanding of the issues and will publish further guidance when the picture becomes clearer.

YOU NEED TO...

- You should take note of the HSE Safety Notice 'Risk of carbon monoxide release during the storage of wood pellets' available on the HSE website www.hse.gov.uk/safetybulletins/co-wood-pellets.htm, if you are planning to install a biomass boiler that uses wood pellets.
- Contact the manufacturer/supplier of your boiler or wood pellets/fuel if you have any further questions.

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

The use of recycled and secondary materials in residential construction



Who should read this: Technical and construction directors and managers, designers and site managers.

INTRODUCTION



Image copyright BRE (UK), reproduced with permission

Recycled and secondary materials are increasingly being used in residential construction, most commonly as hardcore (engineered infill material that is placed within the confines of building foundations to support a ground bearing floor slab). It is important that hardcore materials are selected carefully. They must be inherently appropriate for such a use and suitable for the particular site; for instance, they must not react with sulphates or acid ground conditions, if these are present. A BRE document, 'Hardcore for supporting ground floors of buildings' (DG 522 Parts 1 and 2), includes advice on how to select appropriate hardcore material. Further guidance can be found in the NHBC Foundation publication NF45 'The use of recycled & secondary materials in residential construction'.

Although recycled material such as crushed concrete, brickwork and blockwork, and secondary material such as steel slag, crushed glass and china clay, can be just as competent as primary aggregate such as sand, gravel and crushed stone, they can technically be regarded as waste, as defined by the Waste Framework Directive 2008. Nevertheless, it is possible to reuse them in a legal way; this guidance note discusses how regulatory compliance can be achieved.

Note that recycled materials are defined as those produced by processing selected inorganic material previously used in construction. Secondary materials are generally by-products of mining, quarrying or industrial processes.

GUIDANCE

England and Wales

The appropriate waste regulatory solution for a source of recycled material depends on whether it is to be used on the site of origin or on other sites. Most secondary materials will always be waste; however, some, such as PFA, can be subject to a waste protocol which would render them a recovered product. For England and Wales, this is summarised below and in Figure 1 (on page 14).

Use on the site of origin

All brownfield sites where soils are being excavated

and reused should, ideally, operate under the voluntary Definition of Waste: Development Industry Code of Practice (CoP), which requires a materials management plan (MMP) to be developed. The MMP describes the materials that are to be reused and demonstrates that they comply with four tests:

- a) They are suitable for use.
- b) There is certainty of their use.
- c) The right quantities are available.
- d) There will be no harm to health, safety or the environment.

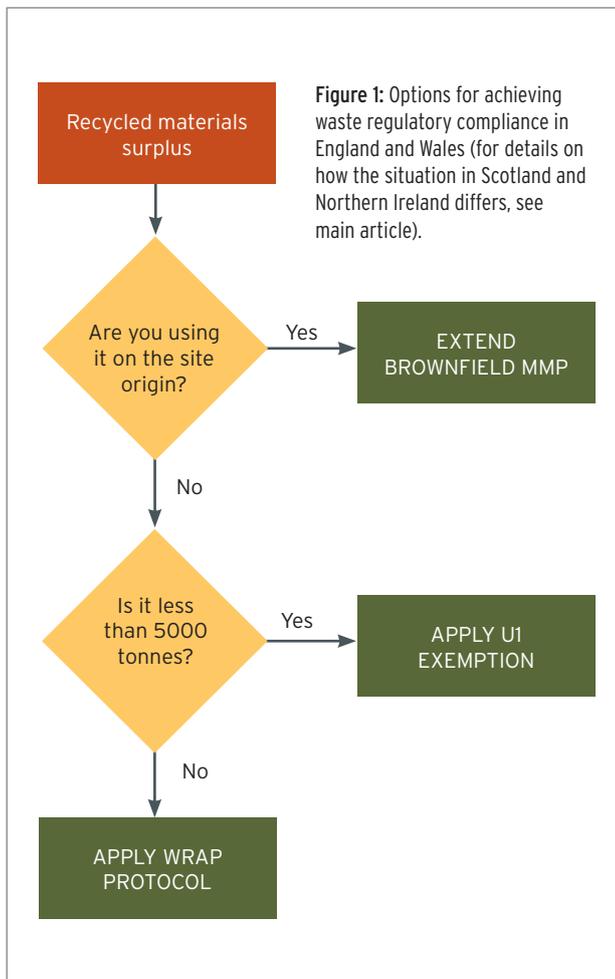
For technical advice and support, call 01908 747384 or visit www.nhbc.co.uk

GUIDANCE AND GOOD PRACTICE

The use of recycled and secondary materials in residential construction



GUIDANCE (CONTINUED)



redevelopment of brownfield sites and, hence, an MMP will not have been produced. In these circumstances, an MMP can be developed for reuse of the secondary material.)

Use on other sites

Recycled materials can also be exported for use as general fill on other sites. In this case, the appropriate course of action depends on whether the weight of the surplus is less than or greater than 5,000t.

Less than 5,000t

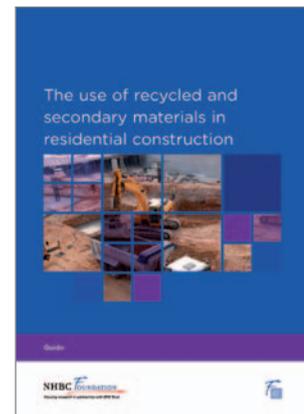
Up to 5,000t of recycled materials for general fill can be used at each receiving site under a U1 exemption, which can be obtained by completing an online form on the Environment Agency website, www.environment-agency.gov.uk. There is no charge for this application, which must be completed in advance of any importation. The Environment Agency has five working days in which to acknowledge and register the exemption.

Note that, when recycled materials are transferred between sites for reuse under a U1 exemption, they are considered to be waste. All such transfers must be made by a registered waste carrier with the relevant duty-of-care documentation. In this scenario, it will still be necessary to demonstrate the materials are suitable for the intended use.

More than 5,000t

If more than 5,000t is to be exported, the WRAP protocol gives an alternative mechanism for regulatory compliance. This provides a uniform control process for recycling demolition materials. When it is followed, the resultant aggregate is considered to be fully recovered and no longer waste. It also provides the user of the material with a quality-managed product to common standards, which increases confidence in its performance.

The framework created by the protocol also provides a clear audit trail for those responsible for ensuring compliance with waste management legislation.



The Environment Agency's stated position is that, where materials have been reused in accordance with the CoP and a declaration to this effect has been submitted to them by a qualified person, the materials will not be considered to be waste. (Full details of this scheme and the requirements for the qualified person declaration are given in the CoP, which is available for download from the CL:AIRE (Contaminated Land: Applications in Real Environments) website, www.claire.co.uk.)

The most straightforward mechanism for reusing surplus recycled materials on the site of origin is to extend the MMP.

(It should be noted that, in certain circumstances, there might not be any soil movement required in



GUIDANCE (CONTINUED)

Other options

For completeness, it should also be noted that, in theory, there is another option: applying to the Environment Agency for a waste permit. This is a process that can take several months. Moreover, it should also be noted that, if NHBC is aware of a waste permit being in force on a site, a red condition will be applied to any affected plots and, consequently, it will be impossible to 'final' a property until the permit is discharged. As the process of discharging even a relatively straightforward permit can take considerable time, it is unlikely that this approach will prove viable for most housing developments.

Scotland and Northern Ireland

The situation in Scotland and Northern Ireland is slightly different from that in England and Wales because the Scottish Environment Protection Agency (SEPA) and the Northern Ireland Environment Agency (NIEA) do not endorse the CL:AIRE CoP. However, SEPA has its own position statement, 'The land remediation and waste management guidelines', but this document expressly deals with excavated soils and therefore does not necessarily deal with recycled aggregate. Similarly the NIEA has produced its own guidance on reuse of soils, 'Guidance on the Regulation of Greenfield Soil in Construction and Development' but, again, this does not include recycled aggregate.

As a consequence, even when reusing recycled aggregate on the site of origin in Scotland and Northern Ireland, it will be necessary either to register an exemption with SEPA/NIEA or follow the WRAP protocol.

In both jurisdictions, exemptions are less restrictive than in England and Wales and, under both sets of regulations, paragraph 19 exemptions are likely to be the most appropriate. In Scotland, under paragraph 19, it is possible to use up to 50,000t of material, which is likely to be sufficient for most brownfield development projects, but in Northern Ireland, there can be restrictions in using over 20,000t. However, there are

many rules concerning the use of the exemptions, together with requirements for inspections. There are also charges for registration of exemptions (£167 to £811 in Scotland and £585 in Northern Ireland). In view of this complexity, in order to ensure compliance with the regulations, a developer should contact SEPA or NIEA for advice.

As in England and Wales, use of the WRAP protocol is an alternative approach.

The correct regulatory solution depends on which part of the UK you are operating in and where the recycled materials are to be used:

England and Wales

On the site of origin,
use the CL:AIRE CoP process.

On other sites where there is less than 5,000t,
a U1 exemption is required at the receiving site.

Visit: www.environment-agency.gov.uk/business/topics/permitting/121138.aspx#online_registration

On other sites where there is more than 5,000t,
the producing site needs to follow the WRAP protocol.

Scotland and Northern Ireland

On any site,
a paragraph 19 exemption is required. For further guidance on the use of paragraph 19 exemptions, restrictions and charges, visit:

Scotland
www.sepa.org.uk/waste/waste_regulation/application_forms/exempt_activities/paragraph_19.aspx

Northern Ireland
www.doeni.gov.uk/niea/waste-home/authorisation/exemption/wml_complex_exemptions/paragraph_19_exemption.htm

YOU NEED TO...

- Because the processes for ensuring that materials are appropriately regulated are quite complex, developers must ensure that they have advisors who are adequately informed on waste regulatory issues.
- Before reusing recycled materials on site or transferring them for use on another site, you first need to ensure that they are fit for purpose. The BRE document, 'Hardcore for supporting ground floors of buildings', provides advice on how to select hardcore material that has the requisite physiochemical properties. You should also refer to NHBC Standards Chapter 4.1 to ensure that the necessary procedures have been followed, so that any materials are suitable for use from the human health and environmental perspectives.

GUIDANCE AND GOOD PRACTICE

Mechanical ventilation with heat recovery (MVHR)



Who should read this: Technical and construction directors and managers, architects, designers and site managers.

INTRODUCTION

Mechanical ventilation with heat recovery (MVHR) has become a popular choice of technology for building designers selecting systems that can meet the performance standards set out in Approved Documents L and F. These systems provide ventilation whilst, at the same time, recovering heat from the exhaust air that would have otherwise been lost. In recognition of this wider use and a genuine need to ensure satisfactory in-service performance NHBC are developing standards for the design, materials and installation associated with MVHR systems.

GUIDANCE

Installed correctly, MVHR systems have the potential to provide an efficient method of ventilation and save energy. But, as with other parts of the building, optimum performance will only be achieved when the system is well designed, the components are correctly specified and the installation is undertaken in a workmanlike manner. NHBC has assembled a Task Group of industry experts to develop benchmark standards for MVHR systems. Although still very much 'work in progress,' discussions within the Group have identified several key performance issues which need to be addressed.

The Task Group discussions to date have identified the need for a co-ordinated design process to reduce the scope for potential conflict when installing systems. A line representing ductwork may look fine on a drawing but may not take full account of potential obstructions, such as floor joists, steel beams and other services. If there is a conflict on site, it may be possible for the installer to overcome minor problems by re-routing ductwork, but any increase in the number of bends or the length, size or type of ductwork, has potential to reduce the airflow and may seriously reduce the performance of the system. In certain circumstances, this may even mean that the system cannot be commissioned correctly at

completion, which could require the removal of ceiling and wall finishes to expose the offending ductwork.

Full consideration must be given to the location of all elements of the system and the precise routing of ductwork during the design stage. There are numerous considerations to be taken into account in relation to noise, positioning of air valves and terminals, building integration and the location of controls, to name but a few. And good practice dictates that, if changes are required on site, reference is made back to the designer.

Another significant issue that needs careful design consideration is the location of the MVHR fan unit, and the necessity to provide reasonable access for routine maintenance and filter cleaning/replacement, which are critical for satisfactory performance. The expectation is that such maintenance will be undertaken by the occupier, and therefore, locating the MVHR fan unit where it can be safely accessed is essential. It is also worth noting that, in general, the efficiency of systems is significantly diminished if the MVHR fan unit is located within an unheated part of the home. It is likely that the recommendation of the working group will be for the fan units to be located within the warm envelope of new homes.

YOU NEED TO...

The new Standards will be distributed towards the end of the year, to become effective on the 1 January 2014. It is, however, recommended that builders adopt the good practice referred to above at the earliest opportunity.

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



Who should read this: Everyone.

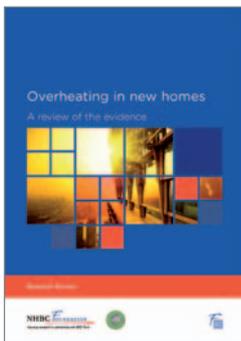
INTRODUCTION

Supporting the industry with high-quality research and practical guidance, all NHBC Foundation reports are available to download free of charge at www.nhbcfoundation.org.

Here are summaries of the latest publications.

GUIDANCE

Overheating in new homes: a review of the evidence (NF46)

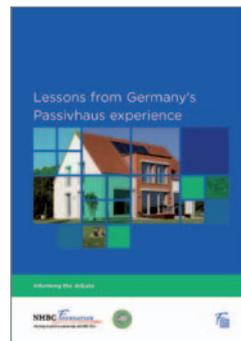


In 2012, the NHBC Foundation published *Understanding overheating - where to start: an introduction for house builders and designers*, providing a guide to the key factors that can lead to high indoor temperatures, and describing some of the measures which should be considered during planning and design in order to mitigate against overheating.

This new report documents a wide-ranging review of existing information, evidence and case studies on overheating, supplemented by outcomes from two industry workshops. The report discusses what parameters might be used in the definition of overheating, and gives guidance on reducing it.

It concludes that there is an urgent need to develop a universally accepted definition of overheating in dwellings, and that the development of a robust threshold for use by planners, designers, builders and authorities is vital for dealing with overheating.

Lessons from Germany's Passivhaus experience (NF47)



As at July 2012, the number of Passivhaus buildings in the UK either completed or under construction stood at a relatively modest 165. At the same time, in Germany, there were around 20,000.

The core focus of Passivhaus is to minimise the requirement for space heating and cooling via high-specification fabric and achieve low overall energy consumption. It is often referred to as a 'comfort standard' as well as an energy standard, and the popularity of Passivhaus in Germany - including a 92% positivity rating by occupants - has been largely due to a combination of social, political and financial circumstances that are specific to that nation.

This report provides an objective overview of the experience gained to date from Passivhaus in Germany and elsewhere in Europe. It looks at the achievements and the national context that has helped its popularity in Germany, while discussing some of the differences that may hinder volume uptake in the UK.

YOU NEED TO...

This article is for general interest. There are no actionable requirements, although readers are advised to note the findings of the reports.

If you have any doubts as to whether NHBC requires additional information, please discuss with your normal NHBC contact and/or **Standards and Technical** on **01908 747384**.

INFORMATION AND SUPPORT

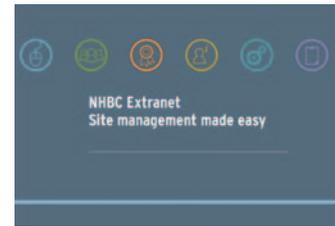


NHBC EXTRANET - EFFICIENT MANAGEMENT OF SITE DOCUMENTS AND DATA

The Extranet has been designed to help you manage and monitor NHBC Warranty, Building Control and Sustainability service provision. Through the Extranet, you can:

- submit appropriate technical information and drawings securely
- submit non-site specific documents
- access sustainability and energy reports
- download sustainability and energy rating certification.

View a demo or sign up now at www.nhbc.co.uk/extranet



TRUSTED BUILDERS ARE NHBC REGISTERED

As a recognised and trusted brand, NHBC is here to provide support for whenever you need it. Being registered with NHBC also gives you the credibility of associating with the UK's leading builder registration scheme, warranty and insurance provider.

As part of your registration, and new for 2013, we will be sending you a benefits booklet listing all services that registered builders have access to, and the free/discounted offers also available to them, including:

- free technical advice
- practical help to comply with regulations
- discounted training offers
- free industry news and updates
- automatic entry to industry-leading awards
- free NHBC branded merchandise.



For further information about benefits specific to you, visit www.nhbc.co.uk/register or call 0844 633 1000 and ask for 'Builder registration'.

CUSTOMER SATISFACTION SURVEYS

Back in 2004, and in response to the Barker Review, NHBC teamed up with the Home Builders Federation to design and implement the National New Homes Customer Satisfaction Survey. Targeted improvements by the industry, as a result of this satisfaction data, have resulted in year-on-year improvements and the number of house builders scoring a 5-star rating has risen from one in the first year of the survey to an impressive 13 out of the 16 builders last year.

Response rates achieved are way above those seen in most other market research activity, which shows the level of importance homeowners place on the purchase of their new home.

Major new improvements to the online reporting tools mean that the reports are now easier than ever to use and house builders can interrogate and drill down into the satisfaction results to understand more about their customers' experience.

Many builders are also choosing to add customised questions to the survey to find out even more about their performance; this is a really cost-effective way of undertaking bespoke customer satisfaction surveys.

To find out more about how you can use the customer satisfaction survey and start benefitting from the new reports, please visit our website www.nhbc.co.uk/cssurveys or contact Toby Phillips on 07841 784213.



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

PRIDE IN THE JOB

Pride in the Job is the only UK-wide competition dedicated to recognising site managers who achieve the highest standards in house building. It has been instrumental in driving up the quality of new homes for 32 years. A Pride in the Job award is the highest industry accolade a site manager can receive. It represents success for the site manager, his team and associated trades, as well as providing a reputational boost for the building company. Most importantly, homeowners who buy a Pride in the Job award-winning home benefit from a high-quality product.

Judging for Quality Awards is taking place on sites across the country now, with the announcement being made in late June 2013. These winners will then be invited to the Regional Awards in the autumn to find out who has progressed further in the competition. www.nhbc.co.uk/prideinthejob.



UPCOMING TECHNICAL EVENTS

Building for tomorrow 2013

For 21 years, Building for tomorrow has been informing the industry on topics that directly impact current and future house building. The focus of Building for tomorrow 2013 is innovation, technology and solutions.

For more information on the 2013 programme and a booking form, visit www.nhbc.co.uk/NewsandComment/Buildingfortomorrow2013/



Dates and locations

12 March	North East Wetherby Racecourse, Wetherby	18 April	West National Motorcycle Museum, Birmingham
14 March	Northern Ireland Hilton Templepatrick, Belfast	25 April	South West The Hilton, Swindon
19 March	North West Thistle Haydock Hotel, Haydock	30 April	Scotland Westerwood Hotel, Cumbernauld
26 March	South East The River Centre, Tonbridge		

TRAINING

Defects Prevention is our most popular technical course and is aimed at site managers, assistant site managers, clerks of works and inspectors. Over the three days of the course, we cover all major construction elements, looking at NHBC Standards requirements and good and not-so-good practice in each element. The course also draws on our claims and inspection experience to highlight the most common defects we encounter - and ways to prevent them. This course was originally for five days, but we have recently refined the content and moved some of the learning into a pre-course learning pack which is provided for all delegates.



Dates and locations

3, 20 & 27 Mar 2013	Edinburgh	17, 24 Apr & 1 May 2013	Milton Keynes
10, 17 & 24 Apr 2013	Wetherby	18, 25 Apr & 2 May 2013	Reading
16, 23 & 30 Apr 2013	Bristol		

Further information is available on our website www.nhbc.co.uk/Builders/ProductsandServices/Training/courses/DefectsPrevention3-day/

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

Useful contacts for technical information and advice

NHBC technical advice and support

Tel: 01908 747384

Email: technical@nhbc.co.uk

Web: www.nhbc.co.uk/builders/technicaladviceandsupport

Technical Extra

Previous editions of *Technical Extra* are available on our website at www.nhbc.co.uk/Builders/ProductsandServices/TechnicalExtra/

NHBC Standards

Buy online at:

www.nhbc.co.uk/nhbcshop/technicalstandards or access the new digital format online via the NHBC Extranet at:

www.nhbc.co.uk/builders/NHBCExtranet

Building Regulations

For guidance on issues relating to Building Regulations, please visit NHBC's TechZone at www.nhbc.co.uk/techzone

Building Control

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 with the house-building 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 and 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'.

Copyright© NHBC 2013

NHBC is authorised and regulated by the Financial Services Authority.

This leaflet has been printed on material which is produced from well-managed forests and is fully recyclable and biodegradable, ECF (elemental chlorine free) and is made to ISO 14001 Environmental Certification.



NHBC, NHBC House,
Davy Avenue, Knowlhill,
Milton Keynes,
Bucks MK5 8FP
Tel: 0844 633 1000
Fax: 0844 633 0022
www.nhbc.co.uk

