

# Technical Extra

October 2011 | Issue 04

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# NHBC STANDARDS

## Chapter 7.2 'Pitched roofs'



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

### INTRODUCTION

In *Technical Extra 1*, we reported on a number of quality issues relating to pitched roofs. The work to review Chapter 7.2 is nearing completion and this article, along with the enclosed letter, highlights the forthcoming publication and, in particular, the new requirements for mechanical fixing of all ridges and hips, and a new specification for roof mortar.

### STANDARDS CHAPTER

NHBC Standards Chapter 7.2 'Pitched roofs'

## REQUIREMENTS

#### Mechanical fixing of ridges and hips

For many years, it has been traditional to bed ridge and hip tiles in mortar to secure them to the roof. Experience shows that pitched roofs will be subject to some movement during the early life of the property. Mortar is generally not tolerant of that movement and can easily crack or de-bond, making ridge and hip tiles vulnerable when subjected to high winds.

The introduction of mechanical fixing for all ridges and hips will greatly reduce the risk of tiles coming off.

#### Roof mortar specification

Our work with the National Federation of Roofing Contractors (NFRC) has provided us with a better understanding of what is considered to be the most appropriate roof mortar mix. The new specification is that:

Roofing mortar should be 1:3 cement:sand with plasticiser. The mix should be based on sharp sand with soft sand added to achieve good workability. The sand content should not exceed two parts soft sand to one part sharp sand.

Because sands will vary, roofers can make slight adjustments to accommodate regional variations. However, the proportion of sharp sand must not be less than one-third of the total sand content.

This mix is not exclusive and appropriate bagged mixes could be accepted by NHBC if they are shown to have acceptable performance.

Builders should no longer use adapted mixes (silo mixes with additional cement content) or factory-produced retarded mortars.

As highlighted in previous editions, dry fixing systems appropriate for the roof may provide an alternative, acceptable solution.

#### Updated Chapter 7.2

We will soon be sending out a revised version of Chapter 7.2 'Pitched roofs'. It contains the changes mentioned above in addition to a number of minor changes, all of which are aimed at improving quality and reducing the high cost of claims we are experiencing at present.

## YOU NEED TO...

- Speak to your roof designer/supplier to ensure they are able to provide a mechanically fixed ridge and hip system.
- Adopt the new roof mortar mix without delay.
- Make sure the issues highlighted in *Technical Extra 1* have been addressed.
- Look out for the revised Chapter 7.2 'Pitched roofs', which will be arriving in the next few weeks.

For technical advice and support, call 01908 747384 or visit [www.nhbc.co.uk](http://www.nhbc.co.uk)



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

## INTRODUCTION

It is important that tiling battens used on pitched roofs should be of good quality to hold the tiles or slates in place satisfactorily, and also provide a secure foothold and support for operatives during the tiling.

## STANDARDS CHAPTER

NHBC Standards Chapter 7.2 'Pitched roofs'.

## REQUIREMENTS

NHBC Standards clause 7.2 - M5(f) requires that timber used for battens and counter battens should be as listed in BS 5534.

BS 5534 states that each batten should be indelibly marked with the following information:

- Supplier
- Origin (imported or British grown, and/or species code \*)
- Graded BS 5534
- Size

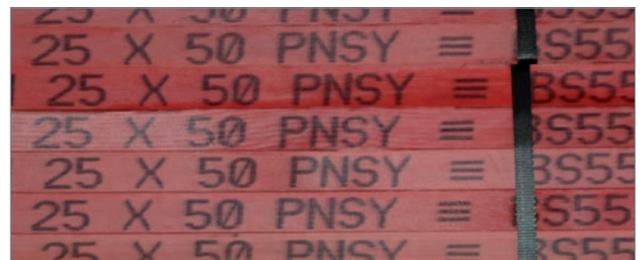
\* e.g. Redwood = PNSY, Whitewood = WPCA

Although these requirements for battens have been in place for many years, suppliers have, for the most part, ignored them and fully graded battens have not generally been made available. As an alternative, the NFRC issued their Technical Bulletin 33 which allows for partial grading of the tiling batten by the supplier and for final selection of the battens on site. We are finding that some battens are being supplied to sites marked to TB33 to indicate some grading has taken place by the supplier, but this marking does not indicate a fully graded batten. Fully graded battens should be capable of being used without any further selection on site.

Full batten grading is more involved than just checking on site for excessively large knots or too much wane. Because of this, fully graded battens can only be provided by the batten producers/suppliers. A number of these suppliers can now provide fully graded roofing battens.

Some suppliers identify their fully graded battens from ungraded or partially graded battens, by applying a coloured stain. Unfortunately, a coloured batten does not indicate that the batten is fully graded, so it is still necessary to check the batten for the full markings as set out previously.

Manufacturers are now changing their practices and it is possible to comply fully with NHBC Standards and BS 5534. Fully graded battens, which are indelibly marked with the appropriate markings, should now be used on all slated and tiled roofs.



Tiling batten markings

## YOU NEED TO...

- Ensure that tiling battens are marked in accordance with BS 5534.



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

## INTRODUCTION

In NHBC Standards 2010, the security requirements for entrance doors in clause 6.7-D4 were updated to take into account changes in British Standards for door locks in respect of security and keyless egress in an emergency.

## STANDARDS CHAPTER

NHBC Standards Chapter 6.7 'Doors, windows and glazing'.

## REQUIREMENTS

Door lock(s) on the main entrance door to homes were required to provide initial security by the use of a latch. This requirement was included to combat incidents, reported by the police, of intruders following people into their homes before they could latch and lock the door behind them.

By pushing the door closed, the latch engages and provides the initial security against anyone following closely behind. The downside of this requirement is that, in some instances, occupiers have been leaving their home with the entrance door just held on the latch and not engaging the deadbolt to provide full security. Furthermore, it appears that, in parts of the country, self-latching locks are uncommon, resulting in some occupiers of new homes locking themselves out without a key.

The main objective, from NHBC's point of view, is that the door lock(s) should be capable of being released from the inside without the need for a key. Keyless egress can be provided with both self-latching and non self-latching locks. It is considered that, in light

of feedback received and from the latest views of the police, the self-latching requirement for the main entrance door to houses is not essential. Therefore, both self-latching and non self-latching locks are acceptable, provided keyless egress is possible.



## YOU NEED TO...

- Ensure that the lock(s) to the main entrance door to a home provides keyless egress. The lock(s) may be self-latching or non self-latching.

# REGULATION AND COMPLIANCE

## Sound Insulation & Airtightness - Scottish Building Standards



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

### INTRODUCTION

In October 2010, amendments to the Scottish Building Standards introduced mandatory post-completion testing requirements for sound insulation and airtightness, as well as more stringent acoustic performance requirements. Transitional arrangements have recently ended, so make sure your sites comply.

### CHANGES TO REGULATIONS

Sound insulation performance criteria have been part of Scottish Building Standards for many years, as has the testing of 'novel' constructions. New criteria from 2010 are:

- increased performance levels are required
- a mandatory post-completion testing requirement for a sample of dwellings on each site
- performance criteria for internal walls/floors.

Airtightness testing was added to the Scottish Building Standards in 2007, but testing was only required under certain circumstances. The 2010 amendments introduce a mandatory post-completion testing requirement for a sample of new dwellings on each site.

## REQUIREMENTS

**Sound insulation**  
*Scottish Building Standards Section 5 - Noise*

Standard 5.1 details the requirements for all walls and floors performing a separating role between different dwellings and also those between dwellings and adjoining non-domestic buildings, whether they are created through new build or conversion. A representative sample of these walls and floors must be tested 'as-built' for airborne sound insulation. Floors must also be tested for impact sound transmission.

**Performance criteria**

	New build and conversions (exc. traditional buildings)	Conversions of traditional buildings
Minimum airborne sound insulation	56 dB $D_{nT,w}$	53 dB $L'_{nT,w}$
Maximum impact sound transmission	56 dB $D_{nT,w}$	58 dB $L'_{nT,w}$

\* Note that Section 5 performance criteria doesn't include Ctr, as used in Approved Document E (England and Wales).

**Airtightness**  
*Scottish Building Standards Section 6 - Energy*

Standard 6.2 details requirements for all new-build dwellings. A representative sample of each type of dwelling on a site must be tested to demonstrate the as-built level of airtightness.

**Performance criteria**

Whilst the Standards do not stipulate a backstop value for uncontrolled air infiltration, it is recommended that buildings are designed to achieve an airtightness value of 10m<sup>3</sup>/h.m<sup>2</sup> @ 50Pa or better. However, it is likely that the SAP will require a more stringent target than this backstop value.



## REQUIREMENTS (CONTINUED)

### Number of tests

The sampling rate, or number of tests, depends upon the construction methods employed and the type of building.

	No. of attached dwellings	No. of wall tests (Flats and houses)	No. of floor tests (Flats only)
New build (using example <sup>1</sup> constructions)	2-20	2	2
	21-40	3	3
	41+	1 extra for every 20 dwellings or part thereof	1 extra for every 20 dwellings or part thereof
New build (using other constructions)	2-10	2	2
	1-20	3	3
	21-30	4	4
	31+	1 extra for every 10 dwellings or part thereof	1 extra for every 10 dwellings or part thereof
Conversions	1-5	2	2
	6-10	3	3
	11+	1 extra for every 5 dwellings or part thereof	1 extra for every 5 dwellings or part thereof

<sup>1</sup> details of example constructions can be found at: <http://bit.ly/mUpq7J>

### Number of tests

As a baseline, testing should be carried out on 1 in 20 dwellings, or part thereof, on each site.

On larger developments, it is advisable to test more than one example of the same dwelling type and spread the testing across the different stages/phases of the overall development.

On smaller developments, the rate of testing may need to increase in order to obtain tests for each dwelling type.

For single dwelling sites, testing may be avoided by using a value of 15m<sup>3</sup>/h.m<sup>2</sup> in the SAP assessment but the side effects of doing this may mean that testing is preferable.



### Grouping

Each different type of construction should be tested. Dwellings of similar construction should be grouped and further subgrouped where necessary and the sampling rates outlined above applied to each subgroup.

### Grouping

Dwellings should be grouped according to their basic type: flat, high rise domestic building, house, maisonette. Further subgrouping may be necessary because, for a dwelling to be considered to be of the same 'dwelling type' as another, it must have similar construction details for the main elements (e.g. floors, walls, roofs and junctions).

### When to test

Tests should be carried out on completed dwellings prior to any decorative floor finishes being fitted.

The new requirements apply for building warrant applications submitted after the following dates:

- Flats and maisonettes should be tested from 1 May 2011.
- Houses and conversions should be tested from 1 October 2011.

The new performance standards apply from 1 October 2010.

### When to test

Tests should be carried out on completed dwellings when all elements of the building envelope (or air barrier) are complete and sealed.

The new requirements apply for building warrant applications submitted after the following dates:

- Flats and maisonettes should be tested from 1 May 2011.
- Houses and conversions should be tested from 1 October 2011.



## REQUIREMENTS (CONTINUED)

### Who can test?

Tests should be carried out by persons who can demonstrate relevant and recognised expertise, e.g.:

- UKAS accreditation
- membership of the Association of Noise Consultants and registered with its PCT registration scheme.

### Who can test?

Tests should be carried out by persons who can demonstrate relevant and recognised expertise, e.g.:

- UKAS accreditation
- membership of the BINDT (British Institute of Non-Destructive Testing) airtightness testing registration scheme.

### Internal walls and floors

Standard 5.2 details a laboratory performance requirement to be achieved for internal walls and floors within a dwelling that form a room used for sleeping (excluding walls between a room and its en-suite bathroom). The constructions used for these partitions must achieve a laboratory airborne sound insulation performance of 43dB Rw.

For example constructions, see: <http://bit.ly/mUpq7J>



## YOU NEED TO...

- Ensure that designs take account of the new performance requirements.
- Appoint your tester early – they should liaise with Building Control for you and help determine a suitable test regime.
- Check your tester's credentials – ensure that they can demonstrate relevant and recognised expertise in line with the Standards.
- Program PCT in as a specific stage in your build program.
- Take care when selecting systems to ensure that the manufacturer's stated performances are for the correct measure. For example, unlike England and Wales, the Ctr term is not used in Scotland when determining separating wall/floor performance, and the performance requirement for internal walls/floors is 43dB Rw as opposed to 40dB Rw in England and Wales.



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

## INTRODUCTION

We outlined The Flood and Water Management Act, and how this might affect the industry, in the first edition of *Technical Extra*. This article is an update on the current situation.

## REQUIREMENTS

The Flood and Water Management Act 2010 (F&WMA), together with the Water Act 2003, make significant changes to how the industry undertakes adoption of sewers and lateral drains, and include provision for the management of risks in connection with flooding and coastal erosion in England and Wales.

The regulations dealing with the first phase of the changes in sewer adoption came into force on 1 July 2011. These regulations apply to all existing private sewers and lateral drains connected with the public sewerage system on 1 July 2011, which, transferred to the sewerage undertakers on 1 October 2011.

Any existing Section 104 adoption agreement covering such private sewers will end, with the exception of any relevant parts covering sewers that have still to be completed, which will remain in force to cover any subsequent sewer construction after 1 July 2011. Provided they are complete and connected to a public sewer, these latter sewers will automatically become the responsibility of the Water and Sewerage Companies (WaSCs) upon commencement of Section 42 of the F&WMA on a date suggested as April 2012, but as yet to be confirmed by the Department for Environment, Food and Rural Affairs (in England) or Department for Environment and Sustainable Development (in Wales).



Section 42 does not cover surface water drainage, as this requires approval by the SuDS Approval Body (SAB), but until the SuDS Standards and the SAB are introduced, it is anticipated that the WaSCs will continue to deal with surface water drainage/sewers in line with current practice.

When in force, Section 42 of the F&WMA, which details the agreements on new foul drainage systems, will require drainage to be constructed in accordance with Mandatory Build Standards (MBS) - currently being produced.

Although the MBS are not yet published, interim guidance suggests that, for sewers to be adopted, they will need to be located in easily accessible locations, such as unfenced front gardens, and be laid under more restrictive conditions when adjacent to buildings, than currently required by NHBC Standards and Building Regulations.

Until such time as the MBS and any accompanying statutory guidance are introduced, house builders will be free to secure design approval under existing agreements, i.e. conventional sewers designed and constructed to Part H of the Building Regulations.





## REQUIREMENTS (CONTINUED)

Consultation covering the SuDS Standards and the MBS is still awaited.

The review of Approved Document C is about to get underway and could include the subject of flooding. The Approved Document is intended to be published in the Autumn of 2013.

### Insurance-backed Approved Contractor Scheme (ACS)

NHBC has been working with the industry and Lloyds Register to facilitate an insurance-backed ACS. This will provide WaSCs' and SuDS' approving bodies (SABs) protection against non-performance as an alternative to bond provision.

A framework for accreditation and inspection has been drafted by Lloyds Register and tested with industry representatives. Chief executives of WaSCs in England and Wales have expressed support and a willingness to contribute to the development of the ACS, following a joint NHBC and Home Builders Federation communication. Consultation meetings have been held with house builders, drainage contractors, WaSCs and insurance providers. Their feedback was used to develop the ACS and the scope of insurance provision.

As further information on the FWMA emerges, implications for NHBC Standards will be considered. These are likely to include:

- the transfer of private sewers and lateral drains to water companies
- the development of MBS for new adopted sewers and lateral drains
- the requirement for the use of sustainable drainage systems (SuDS) wherever possible
- the development of standards for SuDS
- the development of guidance relating to the resistance and resilience of buildings in respect of flooding.

## YOU NEED TO...

There is still considerable uncertainty regarding the technical and procedural requirements associated with the Flood and Water Management Act. NHBC is continuing to monitor the subject and will update the industry as further details become known.

Photographs courtesy of Chuck Yu, ISBE Ltd.

# Guidance on updates to Building Regulations Parts F and J in England and Wales



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

## INTRODUCTION

In April 2010, DCLG informed the industry of the revised requirements to Parts L, F and J and the publication of six supporting Approved Documents, L1A, L1B, L2A, L2B, F, J and two second-tier documents: the *Domestic Ventilation Compliance Guide* and the *Domestic Building Services Compliance Guide*. In this article, we review the regulatory changes of Parts F and J for new dwellings and clarify the new requirements, identifying sources of guidance on how to meet them. Changes to Part L1A of the Building Regulations were featured in *Technical Extra 3* and should be referred to for guidance.

## CHANGES TO REGULATIONS

Approved Documents F and J.

## REQUIREMENTS

### Part F - Means of ventilation

#### Relevance of air permeability

To meet the requirements for lower carbon dioxide emissions under Part L, dwellings are becoming increasingly airtight. As a result, guidance has now been included in Part F for dwellings with a design air permeability equal to, or tighter than,  $5\text{m}^3/(\text{h}\cdot\text{m}^2)$  at 50Pa. For more airtight dwellings, the amount of background ventilation required to naturally ventilated dwellings has increased by up to 50%.

It should be noted that the ventilation provisions are less onerous where the design air permeability is greater than  $5\text{m}^3/(\text{h}\cdot\text{m}^2)$  but this is dependent on the 'as-built' air permeability being greater than  $3\text{m}^3/(\text{h}\cdot\text{m}^2)$ . Dwellings with ventilation provisions based on a design air permeability greater than  $5\text{m}^3/(\text{h}\cdot\text{m}^2)$  need to be re-checked to ensure the ventilation provisions remain adequate in cases where the as-built air permeability falls to  $3\text{m}^3/(\text{h}\cdot\text{m}^2)$  or tighter. In addition, further air pressure tests may be required for dwellings of the same type, to ensure all dwellings in the sample are provided with adequate ventilation.



Photograph by Airflow Developments Ltd

#### Commissioning, inspection and testing

A new requirement has been introduced specifying that ventilation systems should be inspected, commissioned and the air flow rates tested.

The requirement for the testing of ventilation systems applies to extract or fans and cooker hoods, which are used intermittently, as well as systems that are run constantly.

For Building Regulations advice and support, call 0844 633 1000 and ask for 'Building Control' or visit [www.nhbc.co.uk/bc](http://www.nhbc.co.uk/bc)

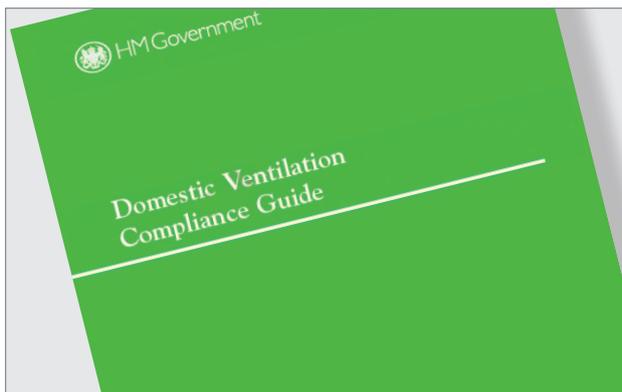


## REQUIREMENTS (CONTINUED)

The requirements for the commissioning of ventilation systems do not apply to fixed systems for mechanical ventilation or any associated controls where testing and adjustment is not possible. This is the case for intermittent extractor fans or passive ventilation systems.

Building Regulations require that notice of testing the air flow rate of ventilation systems is given to the Building Control Body no later than five days after the completion of the work.

The results of air flow rate testing should be recorded as required by Section 5, Part 3 of the *Domestic Ventilation Compliance Guide*, available from [www.planningportal.gov.uk/buildingregulations/approveddocuments/partf/associated](http://www.planningportal.gov.uk/buildingregulations/approveddocuments/partf/associated)



For System 3 (Continuous mechanical extract) and System 4 (Continuous mechanical supply and extract with heat recovery) confirmation that the system has been commissioned and all distribution grilles locked after the system has been balanced should be recorded as required by Section 3.5, Part 3 of the *Domestic Ventilation Compliance Guide*.

### Provision of information

The inspection checklist, air flow measurement test and commissioning sheet in Section 5 of the *Domestic Ventilation Compliance Guide* should form part of the information pack to be given to the homeowner.

### Part J - Combustion appliances and fuel storage systems

#### Carbon monoxide alarms

A new requirement has been introduced solely for solid fuel appliances. Where a fixed combustion appliance is provided, appropriate provision shall be made to detect and warn of the release of carbon monoxide (applies only to dwellings).

Where a new or replacement **fixed solid fuel appliance** is installed in a dwelling, a carbon monoxide alarm **should be provided in the room where the appliance is located**.

Carbon monoxide alarms should comply with BS EN 50921:2001 and be powered by a battery designed to operate for the working life of the alarm. The alarm should incorporate a warning device to alert users when the working life of the alarm is due to expire. Mains-powered BS EN 50291 Type A carbon monoxide alarms with fixed wiring (not plug in types) may be used as alternatives, provided they are fitted with a sensor failure warning device.

The carbon monoxide alarm should be located in the same room as the appliance and:

- on the ceiling, at least 300mm from any wall or, if it is located on a wall, as high up as possible (above doors and windows) but not within 150mm of the ceiling
- between 1m and 3m horizontally from the appliance.

#### Ventilation to appliances

A greater area of permanent ventilation is now required for gas and oil appliances and for solid fuel appliances, other than open fires, where design or assessed air permeability is less than, or equal to,  $5.0\text{m}^3/\text{h}/\text{m}^2$ .

#### Inspection of concealed flues

New guidance has been included for access for visual inspection of concealed flues. This is to ensure that flues can be properly inspected both when an appliance is first commissioned and when it is subsequently serviced.

- All voids containing concealed flues should have at least one inspection hatch measuring at least 300mm x 300mm.
- No flue joint within the void should be more than 1.5m away from the edge of the nearest inspection hatch.
- Where possible, inspection hatches should be located at changes of flue direction.
- Where this is not possible, bends should be viewable from both directions.



## REQUIREMENTS (CONTINUED)

An inspection should be able to determine:

- The flue is continuous throughout its length.
- All joints appear to be assembled correctly and sealed appropriately.
- The flue is adequately supported throughout its length.
- Any gradient of fall back to the boiler (required to cover the condensate produced as part of the combustion process) and any other required drain points have been provided.

Where inspection hatches are installed, the fire and acoustic integrity of the ceiling needs to be maintained.

### Liquid fuel storage and supply

The guidance on identifying where secondary containment is necessary has been expanded to include locations in the inner protection zone as shown on the Environment Agency's groundwater sources map, i.e. located within zone 1 (inner protection zone) of an Environment Agency groundwater Source Protection Zone (SPZ).

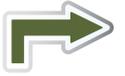
See: [http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=\\_e](http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e)

## YOU NEED TO...

- Ensure the ventilation provisions are adequate based on the design air permeability, with changes made if testing shows the dwelling was more airtight than you were expecting it to be.
- Ensure ventilation systems are commissioned and air flow rates tested.
- Ensure the inspection checklist, air flow measurement test and commissioning sheet in Section 5 of the *Domestic Ventilation Compliance Guide* is completed and is included in the information pack given to the homeowner.
- Ensure a carbon monoxide alarm, is provided in each room containing a solid fuel appliance and is located in the appropriate position.
- Ensure adequate ventilation is provided to heat producing appliances depending on the design and assessed air permeability of the dwelling.
- Ensure that suitably sized and positioned inspection hatches are provided where flues are concealed.
- Check the Environment Agency's groundwater sources map to determine whether secondary containment is required for oil storage.

# GUIDANCE AND GOOD PRACTICE

## Selecting and placing hardcore



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

### INTRODUCTION

NHBC has funded the preparation and publication of this new two-part BRE *Digest: DG 522* which replaces *Digest 276*, which has now been withdrawn. The *Digest* provides guidance for engineers and builders on selecting and placing materials for use as hardcore to ensure that they are physically stable and chemically inert.

### GUIDANCE

The problems associated with hardcore in the UK are legacy issues - the use of unsuitable expansive material as hardcore to support concrete ground floor slabs became common after World War II, when there was a shortage of timber to construct suspended timber floors.

However, there have been recent reports of major problems in the Quebec province of Canada and the Dublin area of Ireland, where unsuitable materials have been used as hardcore and aggregate in several hundred buildings. In these reported cases, aggregate that was used in both concrete and as hardcore contained pyrite which, in the presence of oxygen and water, caused a chemical reaction, in turn producing expansive by-products that burst concrete apart and lifted ground-bearing slabs, causing major damage to structures.



Part 1 of the *Digest* reviews suitable materials, including recycled and secondary materials that are being promoted for use in construction as a sustainable option.

Understanding the extensive collection of new European standards on the specification of suitable aggregate materials can be a daunting task due to the fact that

new test procedures are used to determine some key characteristics. In addition, new parameters are expressed in new categories represented by new symbols.

The *Digest* highlights the key parameters to consider when specifying hardcore, and provides simplified recommendations for common situations to help in the selection of suitable materials.



Part 2 of the *Digest* provides guidance on placing and compacting hardcore. It also reviews some unsuitable materials that have been used and acts as a cautionary note for current specifiers, and as a guide for professionals dealing with a legacy of unstable hardcore problems in existing buildings.

### YOU NEED TO...

- Be familiar with all the important parameters that should be satisfied when specifying hardcore and the correct method of placement in order to be able to provide a stable and inert hardcore.

The *Digest* is available free of charge, in PDF format, to NHBC registered builders and those on NHBC's professional subscribers list through NHBC's free Extranet facility. If you do not have access to the Extranet, please go to [www.nhbc.co.uk/Builders/NHBCExtranet/](http://www.nhbc.co.uk/Builders/NHBCExtranet/) for further information and how to sign up.

For technical advice and support, call 01908 747384 or visit [www.nhbc.co.uk](http://www.nhbc.co.uk)

# Good construction practice versus requirements for accessible thresholds



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

## INTRODUCTION

There have been requirements for accessible thresholds for many years, but NHBC is finding some builders appear to be ignoring requirements, and good construction practice, when it comes the finished ground level relative to the dpc. Also air bricks are being blocked and other construction forms, such as timber frame or SIPs, are being put at risk.

## GUIDANCE

### Ground level and dpc

NHBC inspection staff have noted, and are concerned, that the well-established best practice of the finished ground level being 150mm below the dpc is being ignored on an increasing number of sites.

At the accessible entrance, the landing will be less than 150mm from the dpc. This is inevitable if an accessible threshold is to be provided. However, this need only apply at the threshold and this raised ground level should not be maintained for the remainder of the perimeter of the dwelling.

Where homes have multiple entrances with accessible thresholds, there may be a greater temptation to ignore best practice and maintain a raised ground level around the dwelling between the entrances. This is not acceptable; the dpc should be 150mm above ground level, except next to the entrances.

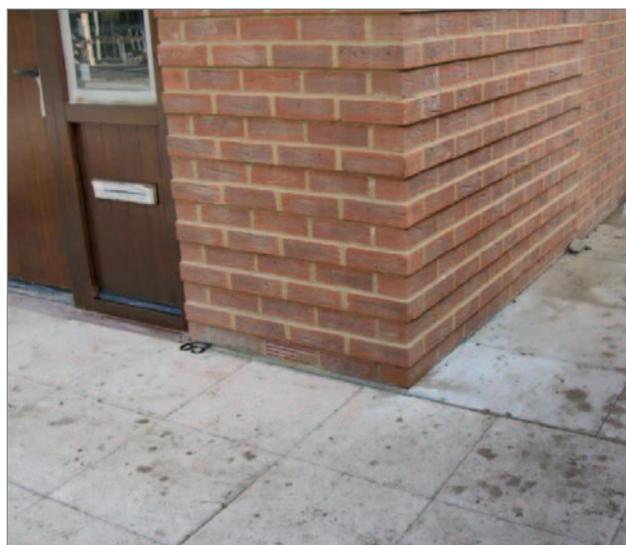
An additional dpc can also be introduced where there is a risk that the primary dpc will be less than 150mm above ground level.

### Ventilation

It is important that air bricks do not become obstructed.

By having the finished external ground level 150mm below dpc, air bricks are usually at least 75mm above the ground.

If the ground level is less than 150mm below dpc, air bricks can easily become blocked with debris and may also allow water from adjacent ground to enter the building. This should not occur.



**Inadequate detailing, with raised ground levels around the perimeter of the dwelling**

### Non-masonry construction such as timber frame

With the introduction of accessible thresholds, it follows that ground floors are closer to ground level.

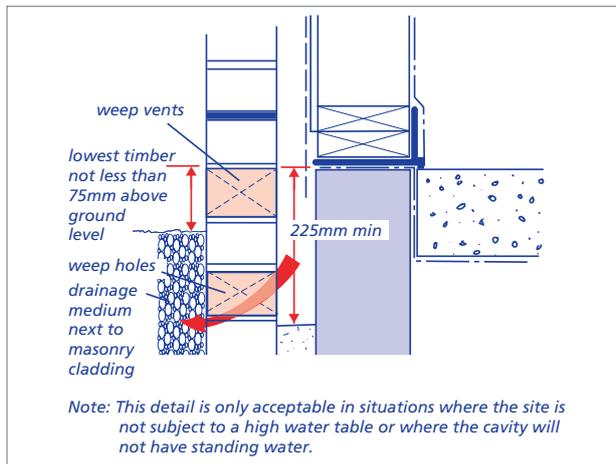
With non-masonry construction, such as timber frame, it is important to remember that the lowest timber - generally the sole plate - should be at least 75mm above ground level to prevent moisture damaging this important element. And even this 'relaxation' can only be accepted in certain situations set out in NHBC Standards clause 6.2-D4(c).

For technical advice and support, call 01908 747384 or visit [www.nhbc.co.uk](http://www.nhbc.co.uk)



## GUIDANCE (CONTINUED)

Illustration taken from NHBC Standards 2011, Chapter 6.2 page 2



## YOU NEED TO...

- Ensure that accessible thresholds do not compromise good building practice in terms of the height of the dpc above ground level and ventilation to sub floors.
- Ensure the lowest timber component is not less than 75mm above ground level, subject to conditions being met.
- Introduce additional dpcs where necessary.



**Who should read this:** Architects, designers and site managers.

## INTRODUCTION

In this article, we highlight the potential damage that can be caused by snow and ice to gutters and fascias that have not been installed in the correct way.

## GUIDANCE

Cast your mind back to December last year: snow and ice had closed many airports and was creating difficult driving conditions across the country. During this time, NHBC began receiving reports from homeowners that guttering and, in some cases, the fascia had been brought down by snow and ice.



Gutters damaged due to snow

Temperatures during December were well below the 30-year averages throughout the United Kingdom, and markedly colder than recent winters. This cold weather may have contributed to problems, causing gutter brackets to become brittle and break. Also, fixings into plastic fascias, and the fixings of the fascia to rafter feet, may have been compromised by the low temperatures.

The weight of the snow, which subsequently became ice, crept slowly down the roof towards the gutter. Many gutters had long icicles hanging from them because of daytime thaw filling them, as the outlet was frozen, and causing them to overflow. The weight of the frozen water in the gutter will have contributed to failure.

Builders should ensure that they follow the gutter manufacturer's recommendations in terms of fixing centres and the type and number of screws used to fix them to the fascia. The fascia needs to be of adequate thickness to provide a secure fixing for the guttering. Finally, the fascia needs to be fixed securely to the rafters, in accordance with manufacturer's recommendations.

## YOU NEED TO...

- Check that your guttering is fixed in accordance with the manufacturer's recommendations.
- Ensure the fascia is adequate to take the recommended screws for the gutter brackets.
- Ensure the fascia is fixed securely to the rafter feet.



**Who should read this:** Anyone with an interest in alternatives to quarried stone profiles and finishes.

## INTRODUCTION

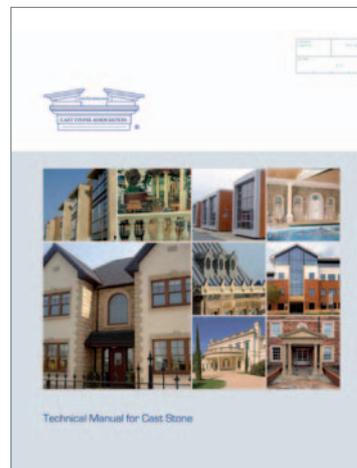
Not all cast stone manufacturers are the same. Quality assurance is important, as is undertaking adequate product testing and working to proper standards. According to the UK Cast Stone Association (UKCSA) this may not be the case for all manufacturers.

## GUIDANCE

Cast stone is a much-used and cost-effective alternative to quarried stone. It is used for enhancing entrances, openings and gables, and for ashlar masonry. Readily available, long-lasting and durable, it can add character and kerb appeal to elevations and boundary walls.



The material is recognised in NHBC Standards and the use of features made from cast stone should minimum comply with the latest version of BS 1217 or the higher standard adopted by members of the UKCSA.



While supporting BS 1217, the UKCSA recognises that durability and weathering characteristics are key issues for cast stone. In order to reduce the risk of problems associated with poor product performance and site handling, the UKCSA has produced its own standard, with a minimum mix design of 35 MPa.

This is at least 40% above the British Standard and ensures strong cast stone with outstanding durability. The UKCSA standard includes a rigorous regime of product testing and third-party verification, the results of which must be logged with UKCSA.

NHBC is pleased to see a fully revised and extended edition of the standard reference for cast stone, UKCSA's *Technical Manual for Cast Stone* which can be viewed or downloaded from [www.ukcsa.co.uk](http://www.ukcsa.co.uk). It provides everything house builders need to know about the manufacture, design, specification and use of this attractive and versatile material.

## YOU NEED TO...

When specifying or using features made from cast stone, ensure they comply with BS 1217:2008. The UKCSA's revised *Technical Manual for Cast Stone* will help you achieve this.

# INFORMATION AND SUPPORT

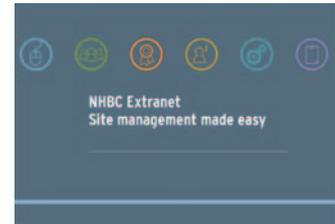


## NHBC EXTRANET - EFFICIENT MANAGEMENT OF SITE DOCUMENTS AND DATA

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](http://www.nhbc.co.uk/extranet).



## BUILDING REGULATIONS - VISIT TECHZONE

Keeping up to date with regulatory change is always a challenge, highlighted recently by the significant amendments to Parts F, J and L.

To help you keep on top of developments, we have introduced TechZone, a specialist area on our website containing the latest information on all aspects of building control. You'll find the most up-to-date consultations on Building Regulations and a question and answer section containing practical advice and technical guidance from our in-house experts.

Visit: [www.nhbc.co.uk/techzone](http://www.nhbc.co.uk/techzone)



## SUSTAINABILITY AND ENERGY

If you need advice on complying with sustainability or energy targets, NHBC's expert consultants can help you achieve your targets cost-effectively, with solutions that are suitable for you.

As well as offering consultancy advice, NHBC can offer Code for Sustainable Homes and BREEAM Assessments as well as EPCs and SBEM.

To speak to one of our consultants, call **0844 633 1000** and ask for 'Sustainability'.



## UPCOMING TECHNICAL EVENTS

NHBC runs technical training events throughout the year

Available dates and venues of current courses may be viewed on our website at: [www.nhbc.co.uk/builders/productsandservices/training](http://www.nhbc.co.uk/builders/productsandservices/training).

For further details, including in-company training, call **0844 633 1000** and ask for 'Training' or email: [training@nhbc.co.uk](mailto:training@nhbc.co.uk).

For more information on training from NHBC, view the latest edition of *Learning Times* at: [www.nhbc.co.uk/builders/productsandservices/training](http://www.nhbc.co.uk/builders/productsandservices/training).

For early notification of future training courses, sign up to NHBC's free e-Newsletter at: <http://www.nhbc.co.uk/newsandcomment/registerfore-news/>



### Building for tomorrow 2012

Now in its 21st year, Building for tomorrow continues to inform the industry on topics that impact directly on today's house builders. For more information on the 2012 programme and booking form, visit [www.nhbc.co.uk/bft](http://www.nhbc.co.uk/bft).



For technical advice and support, call **01908 747384** or visit [www.nhbc.co.uk](http://www.nhbc.co.uk)

## TESTING SERVICES IN SCOTLAND

Changes to regulations in Scotland have increased the performance requirements of air-tightness and sound insulation testing. There is also a need to carry out post-completion testing on every development.

In order to help customers in Scotland, NHBC now provides a post-completion testing service for both acoustics and airtightness, as well as offering expert advice and consultancy.

NHBC is working in association with Robin McKenzie Partnership (RMP), a consulting division of Edinburgh Napier University with over 30 years' experience.

To book tests or discuss the new regulations in Scotland, please contact [testing@nhbc.co.uk](mailto:testing@nhbc.co.uk) or call 0844 633 1000 and ask for 'Testing'.

Visit [www.nhbc.co.uk/scotlandtesting](http://www.nhbc.co.uk/scotlandtesting)



## AIR LEAKAGE TESTING & ACOUSTICS TESTING AND CONSULTANCY

Air-tightness is a key component of improving the energy efficiency of new homes. As a provider of building control, energy and air leakage services, NHBC offers a straightforward and complete solution for Part L compliance.

- We can manage and co-ordinate the whole process in-house, turning the complexity of Part L into a simple solution for our customers. Call 0844 633 1000 and ask for 'Part L' to discuss further.

To assist developers tackling the various regulatory requirements related to airtightness and sound insulation further, NHBC has produced two new factsheets:

- The *Air leakage testing* information sheet addresses key questions around testing requirements and highlights areas needing careful attention.
- NHBC's new *Acoustics factsheet* reviews the regulations and highlights common reasons for failing Part E sound insulation tests. Key considerations for best practice are included, based on NHBC's many years of experience providing acoustic testing for Building Regulations compliance, and acoustic consultancy for developers and registered providers.



Download the factsheets at: [www.nhbc.co.uk/alt](http://www.nhbc.co.uk/alt) or [www.nhbc.co.uk/acs](http://www.nhbc.co.uk/acs)

## TECHNICAL EXTRA 3

The revised Approved Document L1A was published last October and marked a key milestone in the industry's transition towards the zero carbon future.

Transitional arrangements mean that most new homes which are currently under construction need to comply with the previous 2006 edition, but that will change over forthcoming months and years, with an increasing proportion needing to comply with the 2010 edition.

*Technical Extra 3* focuses entirely on the challenges for the industry in complying with Part L and includes articles on DER/SAP, limiting U-values, thermal mass, thermal bridging, party wall heat loss and lighting.

[www.nhbc.co.uk/builders/productsandservices/technicalextra/](http://www.nhbc.co.uk/builders/productsandservices/technicalextra/)



For technical advice and support, call 01908 747384 or visit [www.nhbc.co.uk](http://www.nhbc.co.uk)

## Useful contacts for technical information and advice

### NHBC technical advice and support

Phone: 01908 747384  
Email: [technical@nhbc.co.uk](mailto:technical@nhbc.co.uk)  
Web: [www.nhbc.co.uk/builders/technicaladviceandsupport](http://www.nhbc.co.uk/builders/technicaladviceandsupport)

### NHBC Standards

Buy online at:  
[www.nhbc.co.uk/nhbcshop/technicalstandards](http://www.nhbc.co.uk/nhbcshop/technicalstandards)

### Building Regulations

For guidance on issues relating to Building Regulations, visit NHBC's TechZone at [www.nhbc.co.uk/techzone](http://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](mailto: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](http://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](http://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](http://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](http://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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