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# Part 1

## General information

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# Chapter 1.1

## Introduction and Technical Requirements

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## SCOPE

This Chapter introduces the Standards and gives the Technical Requirements.

NHBC Standards do not apply to:

- health and safety matters relating to building operations
- handling and use of certain building materials
- planning matters except where specifically referred to in these Standards.

Such matters are covered by statutory requirements.

## INTRODUCTION TO THE STANDARDS

### APPLICATION OF THE STANDARDS

The NHBC Standards give the Technical Requirements, Performance Standards and Guidance for the design and construction of dwellings acceptable to NHBC. In the Standards, a DWELLING means a HOME as defined in the NHBC Rules.

The Standards come into effect for every NHBC registered home whose foundations are begun on or after the 1 January 2013 and apply throughout the UK, unless otherwise stated.

### COMPOSITION OF THE STANDARDS

The Standards are divided into 10 Parts, each covering a particular aspect. All parts may not currently contain chapters. The Parts follow the usual construction process; from design through to construction on site.

In general, each Chapter is made up of sections dealing with Design, Materials and Sitework.

### TECHNICAL REQUIREMENTS

**In this Chapter, the Technical Requirements, which MUST be met by the Builder, are in red.**

### PERFORMANCE STANDARDS

The Technical Requirements are supported by Performance Standards which generally relate to Design, Materials and Sitework and are in black.

Alternative standards of performance will be acceptable ONLY if, in the opinion of NHBC, the Technical Requirements are met and the standard achieved is not lower than the stated Performance Standard.

If the Performance Standards are followed the Technical Requirements will be met.

### GUIDANCE

Guidance on how the Performance Standard may be met is in light blue.

Diagrams may contain text in red. This is to highlight points and has no mandatory status.

Guidance is based on normal construction procedures and recommended practices which have been shown to be satisfactory and acceptable over time. NHBC will consider alternative methods to meet

specific requirements, subject to prior consultation and evaluation.

### LIMITATIONS ON USE

The Technical Requirements, Performance Standards and Guidance do not form a complete specification and should not be used as such in contracts.

Individual Chapters cover, as far as practical, the requirements for particular elements of construction. To avoid repetition, some cross-referencing is made to other Chapters, where necessary.

### INTERPRETATION

Occasionally, there may be disagreements on how Technical Requirements and Performance Standards are to be interpreted. Such cases are usually resolved through further consultation, failing which NHBC will exercise its right to decide, subject to appeal to an arbitrator under NHBC Rules.

### TESTING

In accordance with the Rules for Builders and Developers registered with NHBC samples of materials, products and systems shall (where required) be made available for testing to ensure that they comply with Technical Requirement R3.

### STANDARDS AND CODES OF PRACTICE

Where NHBC Standards refer to British Standards or Codes of Practice, other authoritative documents or technical approval certification, the documents shall be the editions current at the time of Building Regulation approval, unless other recommendations are made by NHBC in writing.

The British Standards and Codes of Practice referred to in the NHBC Standards include British Standards or Codes of Practice and those made under the Construction Products Directive (89/106/EEC) and, in particular, appropriate European Technical Specifications approved by a European Committee for Standardisation (CEN).

The UK accepts harmonised standards which are dual numbered British Standards. These have numbers issued by the British Standards Institution (BSI), the International Standards Organisation (ISO) and a European Committee for Standardisation (CEN).

Example: BS EN ISO 9000-1

Unless NHBC provides written notification to the contrary, the use of guidance in authoritative documents not mentioned in the NHBC Standards, such as BRE Digests, can be considered for acceptance.

### TOLERANCES

All measurements shall be within acceptable tolerances. Where it is applicable, account should be taken of Chapter 1.2 'A consistent approach to finishes'. In other situations, tolerances will be those currently acceptable in the industry.

### ACKNOWLEDGEMENTS

NHBC is indebted to the members of the Standards Review Group, Scottish and Northern Ireland Technical Sub Committees and Standards Committee for all their work.

NHBC also wishes to acknowledge the help given by consultants, authoritative organisations, individuals and staff.

A list of the organisations who nominate representatives to the Standards Committee, Scottish Technical Sub Committee and the Northern Ireland Technical Sub Committee is shown below.

#### Standards Committee

Construction Products Association  
Council of Mortgage Lenders  
Federation of Master Builders  
Home Builders Federation  
Institution of Civil Engineers  
DCLG (Department for Communities and Local Government) (observer)  
Royal Institution of Chartered Surveyors

#### Scottish Technical Sub Committee

Homes for Scotland  
Royal Incorporation of Architects in Scotland/Royal Institute of British Architects  
Scottish Branch of the Chartered Institution of Building  
Scottish Branch of the Royal Institution of Chartered Surveyors  
Scottish Group of the Association of Consulting Engineers  
Scottish Building Standards Division

#### Northern Ireland Technical Sub Committee

Construction Employers Federation  
Royal Society of Ulster Architects

## TECHNICAL REQUIREMENTS

### The Builder shall ensure that the work complies with the Technical Requirements

#### R1 Statutory requirements

Work shall comply with all relevant Building Regulations and other statutory requirements relating to the completed construction work

NHBC will generally accept work that accords with relevant Building Regulations/Building Standards and supporting documents. Exceptions would be where NHBC has a higher standard.

#### R2 Design requirement

Design and specification shall provide satisfactory performance

Account shall be taken of:

- (a) The land quality, including:
  - (i) climate
  - (ii) topography
  - (iii) geology and ground conditions
  - (iv) contamination
  - (v) workings below ground
  - (vi) previous use of the site
  - (vii) any other aspect, on or adjacent to the site, which could affect the design.

Where appropriate, the land quality will have to be determined by a person acceptable to NHBC.
- (b) The structural adequacy of the works. The design, with appropriate factors of safety, shall satisfactorily allow for loads during and after construction and for their transfer to the supporting structure, or foundation, without undue movement, including:
  - (i) self weight
  - (ii) all imposed loads, including wind loads
  - (iii) construction loads.
- (c) The geographical location of the site, including:
  - (i) exposure to wind and rain
  - (ii) topography.
- (d) The position of the dwelling on the site, especially with reference to the dwelling's exposure to the weather, including at early stages in the development of a site, even if it is eventually protected by structures built later.
- (e) The position of building elements within the construction works, including the inter-relationship of materials and constructions.
- (f) The security of the dwellings.

#### R3 Materials requirement

All materials, products and building systems shall be suitable for their intended purpose

The structure of the home shall, unless specifically agreed otherwise in writing with NHBC, have a life of at least 60 years. Individual components and assemblies, not integral to the structure, may have a lesser durability and need planned maintenance, repair or replacement during that period.

Account shall be taken of the use and location of materials, products and building systems in relation to:

- durability of both the structure and individual components and assemblies
- geographical location
- position on the site
- position within the structure.

Materials, products and building systems will normally be acceptable if they comply with the following:

- (a) MATERIALS AND PRODUCTS USED FOR CRITICAL FUNCTIONS  
Functions critical to performance are: structure, fire resistance, weatherproofing, durability, thermal and sound insulation, services including heating appliances and flues.  
Any of the following are acceptable:
  - (i) performance in accordance with standards set by NHBC, or
  - (ii) where no NHBC standard is set, compliance with the relevant British Standard or equivalent European Technical Specification approved by a Committee for Standardisation, provided they are used in accordance with the relevant Code of Practice, or
  - (iii) compliance with standards not lower than those defined in a relevant British Standard specification or equivalent, provided their use is accepted by NHBC, or
  - (iv) satisfactory assessment by an appropriate independent technical approvals authority accepted by NHBC, or
  - (v) use of materials and products in accordance with well established satisfactory custom and practice, provided that such custom and practice is acceptable to NHBC, or
  - (vi) acceptance, in writing, by NHBC that the quality and use is satisfactory.
- (b) MATERIALS AND PRODUCTS USED FOR NON-CRITICAL FUNCTIONS  
Compliance with the above acceptance criteria for

critical functions or strictly in accordance with manufacturers' recommendations for the specific use.

- (c) RECLAIMED MATERIALS  
Reclaimed materials may only be re-used with the prior agreement of NHBC. Independent certification of suitability may be required.
- (d) PROPRIETARY BUILDING SYSTEMS  
Reference should be made to R3(a), (iv).
- (e) TIMBER DURABILITY  
Reference should be made to Chapter 2.3 'Timber preservation (natural solid timber)' (each section).

#### Note

Equivalents to British Standards or technical approvals authority shall be those accepted in the UK.

#### R4 Workmanship requirement

All work shall be carried out in a proper, neat and workmanlike manner

The Builder shall ensure that:

- (a) the conditions of the materials, products and the completed work are satisfactory
- (b) appropriate precautions are taken to prevent damage
- (c) account is taken of the following:
  - (i) the requirements of the design
  - (ii) suitable methods of unloading and handling
  - (iii) proper protection during storage
  - (iv) use of correct installation methods
  - (v) protection against weather during construction (including excessive heat, cold, wetting or drying)
  - (vi) protection against damage by following trades.

#### R5 Structural design requirement

Structural design shall be carried out by suitably qualified persons in accordance with British Standards and Codes of Practice

The following shall be designed by Chartered Civil or Structural Engineers whose status (including professional indemnity insurance) is accepted by NHBC:

- (a) foundations on hazardous ground where the hazard makes special consideration necessary. (Note. This would not apply to matters for which NHBC sets Standards, such as building near trees, except where specified to the contrary)
- (b) foundations and superstructure of every building over three storeys in height
- (c) certain types of foundations and retaining walls, as required in the individual Chapters of the NHBC Standards

- (d) any structural element which is not based on specific design criteria as laid down in the Chapters of the NHBC Standards
- (e) any dwelling not constructed in accordance with UK traditional practice.

**Note**

Other structural elements may be designed by a Chartered Civil or Structural Engineer or others whose status (including professional indemnity insurance) is accepted by NHBC.

The structural design shall take account of the durability requirement in Technical Requirement R3 Materials requirement.

In England, Wales, Northern Ireland and the Isle of Man, structural design may be undertaken by the Builder's own Engineer or a Consulting Engineer employed by the Builder. Where specialist subcontractors undertake the design, it must be separately appraised by the Builder's own Engineer or by a Consulting Engineer employed by the Builder to ensure that the site investigation, choice of foundations, siting and construction of dwellings are properly taken into account and that the design is appropriate for the loading and conditions.

In Scotland, the Engineer shall be independent of the Builder and specialist subcontractor.

Account shall be taken of all parts of the following British Standards

(Eurocodes) and their respective National Annexes.

BS EN 1990	Basis of structural design (Eurocode 0)
BS EN 1991	Actions on structures (Eurocode 1)
BS EN 1992	Design of concrete structures (Eurocode 2)
BS EN 1993	Design of steel structures (Eurocode 3)
BS EN 1995	Design of timber structures (Eurocode 5)
BS EN 1996	Design of masonry structures (Eurocode 6)
BS EN 1997	Geotechnical design (Eurocode 7)

Alternatively, designs in accordance with BS 8103 'Structural design of low rise buildings' will be acceptable.

The Builder shall:

- require the Engineer to issue clear instructions for site personnel

- not permit departure from the design without the Engineer's written consent
- require the Engineer or his representative to carry out such inspections as may be required by NHBC to ensure the adequacy of the design and construction.

The Builder shall ensure that the Engineer visits the site during construction:

- (i) when the foundations have been designed under this Technical Requirement, or
- (ii) when specifically required by NHBC in these Standards.

The Engineer shall satisfy himself that the design is suitable for the conditions encountered on the site of each dwelling.

When requested by NHBC, the Builder shall:

- produce such design documents, calculations and prescribed forms of certification as NHBC requires for scrutiny
- provide design documents and assembly instructions, solely for the use of NHBC staff
- arrange for NHBC staff to have access to places where off-site fabrication is taking place.

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