

Technical Extra

November 2020 | Issue 26



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Raising Standards. Protecting Homeowners



Welcome to *Technical Extra 26*

Standards 2021, the latest edition of NHBC Standards has just been published. This new edition will apply to every new home registered with NHBC where foundations are begun on or after 1 January 2021. There will be no printed version available for Standards 2021, however this is freely available from the NHBC website (www.nhbc.co.uk).

The main changes to the standards are detailed in this Technical Extra; External masonry walls and Drives, paths and landscaping have been updated whilst chapter 7.1 on Flat roofs, terraces and balconies has been re-written to provide clearer guidance and to reflect products being used on sites today.

Safety is always paramount, we have therefore provided guidance on safety critical fixings used for the fixing of various systems to the structure e.g. cladding, masonry supports, balustrades & handrails, impact protection barriers, canopies, ceilings and services.

Damage caused by water ingress can be costly to repair and cause distress to the homeowner, we have provided guidance which will assist with ensuring the correct waterproofing of masonry parapet walls is used on roofs and terraces.

In May 2020, the Ministry of Housing, Communities and Local Government (MHCLG) introduced an amendment to Approved Document B, volumes 1 and 2 that will require sprinklers and wayfinding signage in blocks of flats with a storey 11 metres or more above ground level. The changes will take effect from 26 November 2020 with a short transitional period until 29 January 2021, (this will only affect the approved guidance in England).

Since the publication of Technical Extra 25 in August 2019, NHBC has been able to undertake more detailed research and industry liaison regarding elements of construction. A pattern has now emerged of regular queries relating to the application of Regulation 7(2) on the ban on combustible materials in external walls of 'relevant buildings'. We have provided guidance on the application of the regulation, and updates some of the guidance previously provided in Technical Extra 25.

One of the changes to Regulation 7 in 2018, was all relevant buildings with a habitable floor over 18m high from ground level required non-combustible cavity trays as part of the external façade. The house building industry has faced challenges in meeting this requirement and satisfying NHBC Standards. We have detailed how we are managing this situation.

A reminder regarding fire doors and linings; it is important that door linings / frames are fitted correctly, and any gaps are within tolerances, with any filler being the defined approved product for the door set system. This means this needs to be checked at the pre-plaster key stage inspection.

Following the Government's consultation on changing places toilets, amendments to Approved Document M, Volume 2 have been released that will apply to certain buildings from 01 January 2021. The amendments relate to certain buildings other than dwellings and require enhanced facilities for individuals with complex and multiple impairments who may require the support of up to two assistants.

The transitional arrangements for manufacturers to be able to demonstrate their composite lightweight SIP lintels and arches are acceptable to NHBC are detailed following liaison with the manufacturers and certifiers.

Bathroom and kitchen pods have been discussed for many years and are becoming more popular. With the increasing market for off-site manufacture being used on high rise large residential developments, due to the cost and time savings as well as a reduction in site wastage. Guidance has been provided to ensure these pods are manufactured under controlled conditions, and in accordance with the NHBC standards.

We hope you find this edition of Technical Extra useful to your work.

Richard Smith
Head of Standards, Innovation & Research



NHBC Standards



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

NHBC Standards 2021

Introduction

The following three chapters have been reviewed and updated for the publication of NHBC Standards 2021:

Chapter 6.1 External masonry walls

Chapter 7.1 Flat roofs, terraces and balconies

Chapter 10.2 Drives, paths and landscaping

Details of the changes can be found by attending the webinar (link to details) or by looking at the NHBC Standards online: <http://www.nhbc.co.uk/Builders/ProductsandServices/TechZone/nhbcstandards/>

The Standards are only available online for 2021, there will be no printed versions available.

Guidance

A summary of the changes is shown below:

Summary of major changes

Chapter 6.1 External masonry walls

A task group was established to review and update this chapter, the membership comprising representatives from manufacturers, Trade Associations and builders. The chapter needed updating rather than radical changes to reflect the current standards and practices used on site.

Index

Changed clause 6.20 title from cold weather working to Protection of the works during construction.

Introduction - all new text to explain the application of this chapter and the relationship and requirements from other chapters which will effect the works.

Definitions - this is all new text

Clause 6.1.1 Compliance - no changes were made

Clause 6.1.2 Provision of information

Additional requirements added for information to be provided to NHBC:

- Position of fire breaks, cavity barriers and other passive fire stopping; required fire resistance period should be specified
- The setting out dimensions, these should be the masonry co-ordinating dimensions

Clause 6.1.3 Structural design

Additional requirement added for damp proof courses

Compliance with standards - the following standard:

"PD 6697 Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2" were added

Clarification of the applicable parts to the standards were referenced.

Lateral restraint - a new paragraph has been added "Lateral restraint provided by buttressing walls."



Guidance (continued)

Concentrated loads (formally called point loads), the guidance has been clarified and tidied up.

Bonding - aerated concrete now referenced as aircrete.

Movement joints - table 1 revised and updates, reference to calcium silicate bricks has been removed due to the lack of use, Dense concrete blocks and natural stone masonry has been added. A new set of notes to support table 1 has been included.

Tidy up and clarification of guidance on movement joints regarding the suitable materials that can be used for movement joints.

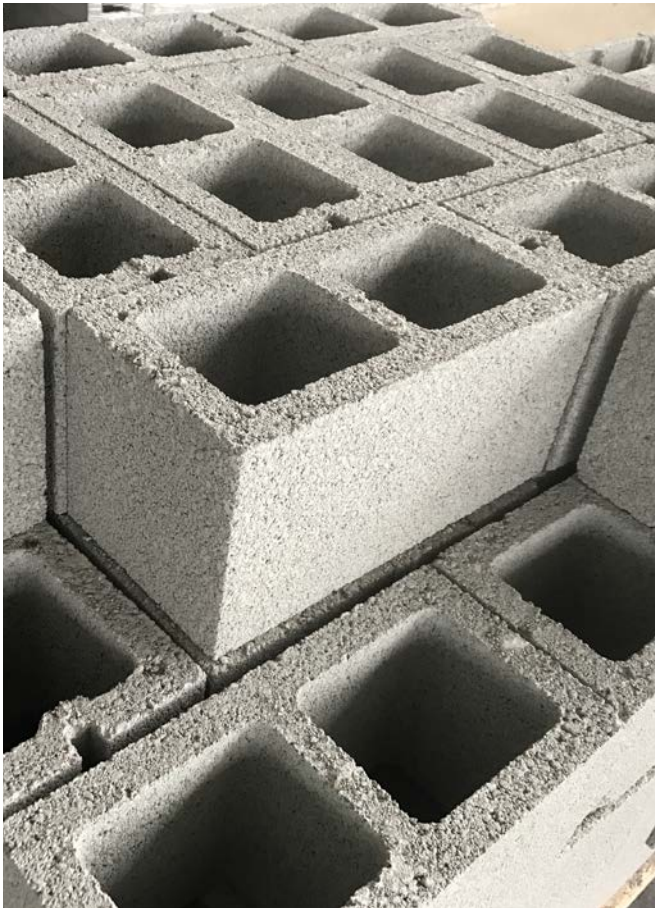
Damp proof courses - this is new guidance.

Clause 6.1.4 Fire resistance

The guidance has been completely re-written with more information provided on cavity barriers.

Clause 6.1.5 Acoustic resistance

Additional guidance provided on sealing air paths, on structural members not to transfer across separating walls and making reference to Robust Details Ltd handbook, which provides numerous standard details.



Chapter 6.1.6 Exposure

The previous requirement for frost attack has been changed to be called freeze/thaw cycles.

Durability - the terminology has been improved, current standards are now referenced, removed reference to air entrained mixes.

Rain penetration - additional bullet points provided which cover single skin garage walls, wall tie drips and cavity trays, DPC's and weep vents. The Insulation guidance has been updated to reflect current regulations.

Freeze/thaw cycles - now makes reference to Table 15 of PD 6697.

Removed reference to calcium silicate bricks.

The postcode list for areas of severe exposure of frost has been removed too.

6.1.7 Thermal insulation

Improved guidance on thermal insulation materials and their installation to reflect current products.

Table 2 Suitable wall constructions for use with full-fill cavity insulation, this now allows the use of recessed mortar joints in sheltered locations.

The previous restrictions on retro filling cavities in Scotland, Northern Ireland and Isle of Man have been removed.

The Inner leaf of insulated blockwork and dual insulation guidance has been removed.

6.1.8 Concrete blocks

Updated the standards referenced, rewritten guidance on sulfate attack below ground.

6.1.9 Bricks

The different types of brick have been separated into sections for:

- clay brick
- concrete brick
- reclaimed brick
- special shaped brick.

The previous guidance for calcium silicate brick has been removed from the standard due to lack of use; the guidance will go into a Technical Guidance note.

6.1.10 Stone masonry

Additional standards have been referenced for stone copings and sills.

New guidance added to cover stone used below dpc level.

New guidance added on wall ties for use with stone masonry.

NHBC Standards 2020

Guidance (continued)



6.1.11 Construction of masonry walls

Referenced the following standards, to which masonry walls should comply:

BS EN 1996-2 Eurocode 6 Design of masonry structures. Design considerations, selection of materials and execution of masonry.

BS 8000-3 workmanship for masonry code of practice.

Introduced the site reference panel into the standard to act as a benchmark.

Now cross reference the tolerances detailed within Chapter 9.1

Construction, now added that cavity barriers should be installed as the work progresses.

A new paragraph has been included on protecting the cavity wall during construction.

Chasing for services, the guidance has been completely revised.

6.1.12 Lintels

Additional guidance and diagram provided, where separate lintels are used to support the inner and outer masonry leaves.

6.1.13 materials suitable for mortar

Updated the standards referenced.

6.1.14 Mortar

Modified and updates Table 6 to include a column covering equivalent mortar class to BS EN 1996.

Guidance modified for cement types with sulfate resisting properties.

6.1.15 Render

New reference to chapter 6.11, which covers render in more detail.

6.1.16 Cladding

New reference to chapter 6.9 and when this chapter should be used, the requirement for moisture barrier removed as well as its guidance.

6.1.17 DPCs and cavity trays

Improved guidance on lintels and cavity trays has now been included.

Parapet detail - copings to comply with "*BS 5642 Sills, copings and cappings. Specification for copings and cappings of precast concrete, cast stone, clayware, slate and natural stone*", additional drawings included to show different materials used for the coping.

Arches - additional new guidance added to the section.

6.1.18 Wall ties

The guidance has been brought up to date to reflect current regulation and practice.

A new section on bed joint reinforcement guidance has been added.

6.1.19 Handling materials

More guidance provided covering for more products and components to assist with site safety.

6.1.20 Protection of the works during construction (previously Cold weather working)

This is a new requirement:

Precautions shall be taken to protect walls from damage during construction. Issues to be considered include:

- Cold weather working
- Hot weather working
- Excessive rain

New and updated guidance to reflect the requirement changes have been added.

Guidance (continued)

Chapter 7.1 Flat roofs, terraces and balconies

The Chapter has undergone a full review and has been updated with the assistance of a task group made up from members of the flat roofing industry, including manufacturers and contractors, and related trade bodies, organisations, and NHBC technical staff.

The title of the chapter has been changed from the current 'Flat roofs and balconies' to 'Flat roofs, terraces and balconies' to reflect the extended scope of the chapter which now includes terraces and podiums.

The clauses within this new chapter are:

7.1.1 Definitions for this chapter

The definitions and list of related sources of information have been extended to cover the increased scope of the chapter.

7.1.2 Compliance

This details the various British and European Standards, as well as trade association guidance which are relevant and support the chapter.

7.1.3 Provision of information

This lists out what design and specification information should be issued to NHBC.

7.1.4 Flat roof, terrace and balcony general design

The various combinations of 'deck systems' and 'toppings' covering 'uninsulated', 'cold', 'warm', and 'inverted warm' constructions have been shown in a new illustrative format to make it easier to use.

7.1.5 Drainage

The order of some sections has changed with 'drainage' being moved to the beginning of the chapter to emphasise its importance in the design and construction. Drainage includes guidance on the use and interpretation of 'zero fall

roofs' and how to maintain effective drainage on the completed waterproofing layer. New guidance has been introduced on the drainage of small balconies and terraces, which follows closely the advice given in the recently published BS 8579 on balconies, which NHBC helped to draft.

A clause has been added on carrying out a deck survey and having a formal handover between the deck erector and waterproofing contractor to ensure a fully drained waterproofed surface is achieved with no back falls.

7.1.6 Flat roof, terrace and balcony structural design

This clause has been updated and now includes guidance on short and long-term deflection and the effect on drainage.

7.1.7 Timber structure and deck

The guidance has been fully reviewed and contains more details on the durability requirements, with the structural elements of balconies having at least a 60 year service life.

7.1.8 Concrete decks

Further advice has been given on ensuring a cast in-situ concrete deck is adequately dried before a permanent waterproofing layer is installed, and on the need to carry out a adhesive bond test prior to laying an adhesive bonded waterproofing layer, together with a note warning that the bond can be affected by non-compatible liquid applied treatments used to help cure the concrete.

7.1.9 Profiled self-supporting metal decks

The section on 'profiled metal decks' has been expanded to cover 'profiled self-supporting metal decks' supporting 'warm' and 'Inverted warm' roof toppings. A new section has been added on 'profiled self-supporting metal roofing' covering 'site assembled' insulated composite panels, including standing seam systems, and 'factory insulated panels'.

7.1.10 Profiled self-supporting metal roofing

This clause requires self-supporting metal roofing to be of adequate strength and durability, resisting water penetration into the building and providing suitable thermal and sound insulation.

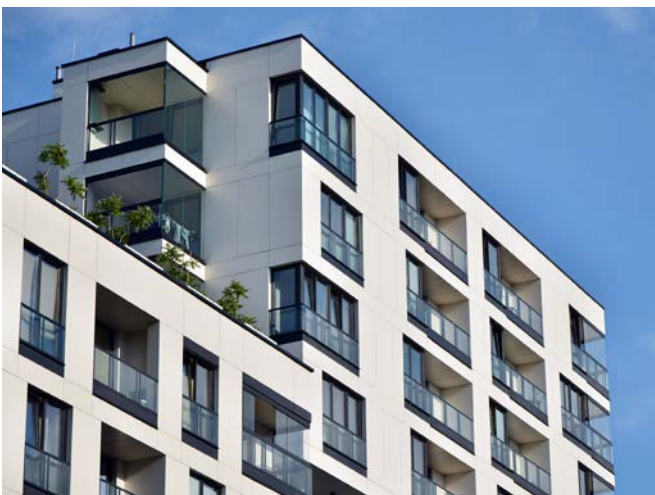
7.1.11 Thermal insulation and vapour control

More in-depth guidance has been included on 'thermal insulation and vapour control'.

7.1.12 Waterproofing layer and surface treatments

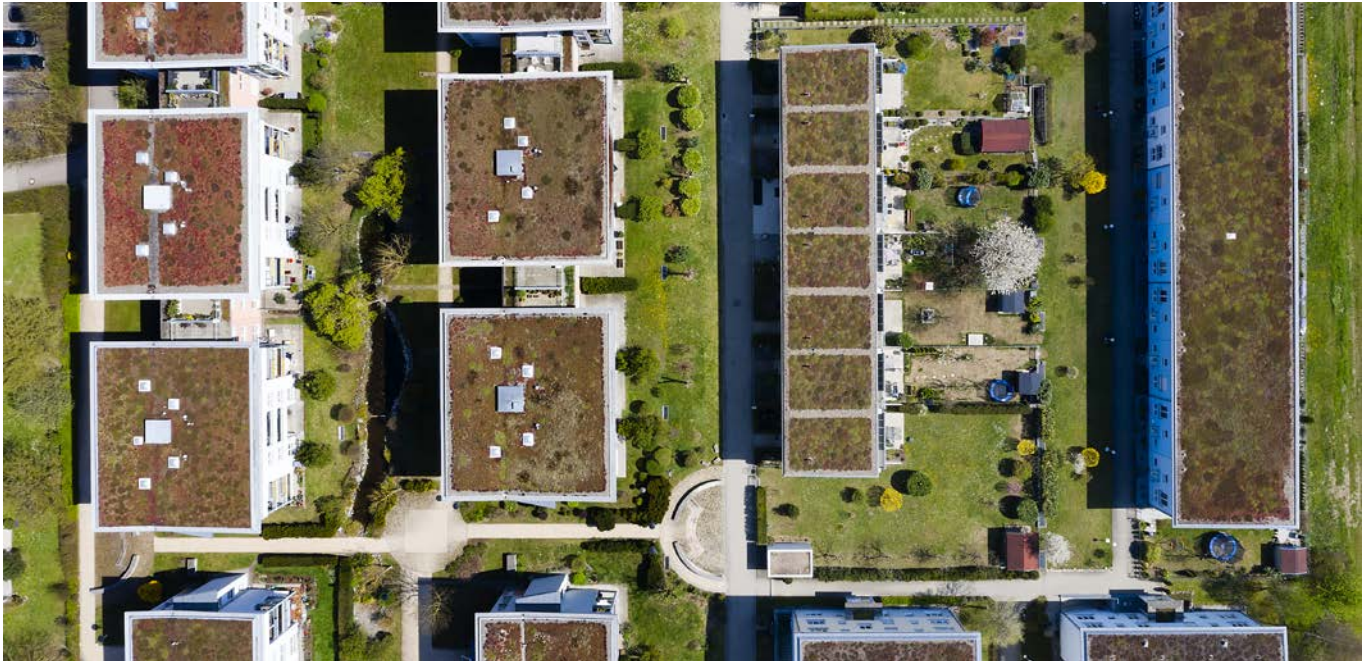
The section on 'Waterproofing layer and surface treatments' has been revised to include more commonly used materials other than traditional bitumen membranes.

'Fully supported flat sheet hard metal roof' waterproofing designs has been included for the first time with illustrations on the preferred approach when using such waterproofing systems.



NHBC Standards 2020

Guidance (continued)



The need to check the integrity of the waterproofing layer has been included, either visually or electronically depending on the size and complexity of the roof, and for any test report to be made available to the NHBC.

7.1.13 Green and biodiverse (brown) roofs - including roof gardens

Further guidance has been introduced into the section on 'Green and biodiverse roofs (brown roofs) - including roof gardens' including both 'warm' and 'inverted warm' green roof build-ups. Where the green roof topping is not provided by the waterproofing layer manufacturer/contractor the need for a formal handover between the waterproofing system contractor and the green roof contractor has been included together with a written confirmation of compatibility on the two systems being used together.

7.1.14 Blue roofs

A section on 'blue roofs' has been introduced for the first time, with an emphasis on the need to have an effective water flow reduction layer and the effect of water penetration on the thermal insulation valve when using an inverted warm roof design over a warm roof design.

7.1.15 Raised podium

A new section dealing with 'podiums' has been added to differentiate between 'raised podiums' which are dealt with under Chapter 7.1 and 'buried podiums' which are dealt with under Chapter 5.4 'waterproofing of basements and other below ground structures'.

7.1.16 Detailing of flat roofs

The illustrations in the section on 'detailing of flat roofs' have been reviewed and some minor changes have been made including adding an inverted warm roof drainage outlet to show the two levels at which roof drainage occurs.

7.1.17 Accessible thresholds and upstands

The section on 'accessible thresholds and upstands' has been amended to include insulated upstands and a clause added on not using waterproofing membrane as DPCs under load bearing walls and avoidance of forming hidden upstands within inaccessible cavities in cavity walls.

7.1.18 Parapets and guarding to terraces and balconies

The section on 'guarding' has been expanded to include illustrations and text on the design of copings and waterproofing to parapet walls and examples on how to fix balustrade posts through waterproofing layers without causing leakage through the waterproofing.

The main changes to this chapter are bringing it up to date by replacing the old BS Standards specification and references with harmonised EN Standards'. References to the Highway Works specification have also been updated together with the clause on sub-base thickness.

Several definitions have been added at the beginning of the chapter to, making it easier to understand the tables detailing the pavement construction and provide clarity on limitations of flexible retaining walls.

More up to date guidance is also provided on garden areas and timber decking.

NHBC Standards

Guidance (continued)

Chapter 10.2 Drives, paths and landscaping

Definitions

A table of definitions has been provided at the start of the chapter, in keeping with recent chapter updates. This is to provide clarity and aid the understanding of the words, terms and phrases that are used within the context of the chapter.

10.2.3 - Stability

The term 'flexible retaining walls' was introduced as an overarching wall type for the gabion and timber retaining walls previously mentioned in old Standards.

10.2.6b - Drainage

The SuDS Manual - CIRIA report C753 is now referenced, which superseded and replaced the old CIRIA report C522, previously referenced.

10.2.6c - Construction details

Tables 2a - 2d were revamped and brought up to date, with all references to obsolete or superseded BSs removed and replaced with BS EN standards. Recommendations and references within the tables were also updated to reflect the latest information in the Manual of Contract Documents for Highway Works (MCHW) Volume 1 - Series 800.

The notes at the bottom of the tables were also revised and brought up to date.

10.2.6d - Minimum sub-base thickness

Table 3 has been updated by removing reference to use of geotextiles and together with the column referring to reduced thicknesses of sub-base when used in conjunction with geotextile material. However, to acknowledge the fact

that proprietary geogrid product with proven mechanical enhancement properties exist, we have made provision for such bespoke design using proprietary products to be considered.

10.2.6e - House paths and patios

The maximum size of aggregate is reduced from 75mm to 50mm.

10.2.7 - Materials

Some minor editorial changes with four new standards added to the references. The text at the bottom of the clause was also reviewed to include subsoil in addition to topsoil.

10.2.8 - Garden areas within 3m of the home

In the guidance to the clause, the importance of soil selection and management in the immediate vicinity of homes was highlighted as a means of preventing waterlogging.

10.2.9 - Garden areas

In the guidance, some factual and editorial changes were introduced to bring them in line with current practices in BS 3882 and BS 8601 including no obstruction within the top 450mm of the garden areas.

10.2.10 - Timber decking

Use Class 4 classification requirement for timber decking in contact with the ground now specified in accordance with the latest TDCA guidance and recognition of the change of name of the trade organisation (from TDA to TDCA) that provided guidance and support to the sector.



Post installed safety critical anchors - quality control and testing



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

Introduction

Post-installed anchors or fasteners are used for fixing various systems back to the structure. Most commonly they are used to fix cladding, but they can also be used for other systems, such as masonry supports, balustrades & handrails, impact protection barriers, canopies, and ceilings & services. Post-installed anchors and fasteners are prone to error in installation, and this can lead to failure of the fixing. In certain instances, failure of a fixing can be safety critical, and where this is the case, adequate measures should be adopted to reduce the risk of failure.

Guidance

The determination of safety critical fixings and need for proof testing is covered in BS 8539 and the Construction Fixings Association (CFA) Guidance Note: Procedure for Site Testing Construction Fixings.

Factors to consider in determining safety critical fixings include but not limited to: risk of failure; risk to human life; access to the fixings; location of the system being secured and inability to undertake remedial works.

Safety critical fixings should comply with the statutory requirements and NHBC's Technical requirement R3 and R5. The correct installation of the fixings should to be achieved firstly through competent design, and secondly through good quality control of the installation procedure on site. Where good quality control cannot be demonstrated, proof testing of safety critical anchors becomes a critical requirement to confirm the quality of the fixing installations.

Installation undertaken by competent and certified installers operating under competent supervision are generally accepted as having good quality control. Some fixing manufacturers provide certified installers with a detailed method statement and quality control plan for their work, particularly where there is more than one type of fixing being installed. Equally, where the fixing installation is not undertaken by the fixing manufacturer, the builder or contractor responsible for the installation should endeavour to collate their quality assurance information into a quality control plan, which should be made available on site for review.

Where fixings installation are safety critical but it has not been shown that the installers are competent and supervised to BS8539 standards, then proof (pull out) testing of fixings at a minimum rate of 2.5% of the fixings will be required, to demonstrate adequacy of installation. These requirements apply to all the different types of critical fixing deployed on the project.

Further information is available from NHBC project managers, who are able to provide detailed guidance and templates of required information.

You need to...

- Ensure safety critical fixings are identified by the Designer and appropriately installed by competent persons who are also supervised.
- Safety critical fixings should comply with the statutory requirements and NHBC's Technical requirement R3 and R5.
- Adequate quality control should be in place to capture the critical fixing installed and demonstrate the competency of the installers.
- Where the competencies of the installers cannot be demonstrated, proof testing of the fixings should be undertaken to demonstrate their adequacy.

Waterproofing masonry parapet walls to roofs and terraces



Who should read

this: Technical and construction directors and managers, architects, designers, manufacturers and site managers.

Introduction

Damage caused by water ingress through masonry parapet walls is an all too common problem which can lead to substantial repair costs. However, with careful design and good workmanship such problems can be prevented.

Guidance

NHBC Standards Chapter 7.1 'flat roofs and balconies', shows a typical masonry cavity parapet wall to a flat roof. Similar details are often used around terraces in combination with balustrade guarding.

The exposed nature of parapet walls to wind driven rain puts them at a high risk of water penetration and damage unless suitably protected. The most vulnerable part is the top of the parapet and this should be protected with well-designed copings, or by dressing the roof waterproofing membrane up and over the top of the wall.

Copings are generally preformed in concrete, cast stone, pressed metal, or GRP, and should have sloped upper surface(s) for drainage. They should project beyond the faces of the wall and incorporate a drip at least 30mm off the wall to prevent water running back under the coping and causing wetting or staining to the wall. Where the wall is protected by the roof waterproofing membrane, the membrane should slope back toward the roof with the outer upper edge finished with a suitable trim. As the trim is not the drained edge it may have a smaller projection than the 30mm provided it discharges droplets clear of the wall.

Joints between concrete and stone copings are often porous and can let water through, therefore, a damp proof course (DPC) is required under the coping to collect and safely discharge any moisture that passes through the joint. The DPC should project beyond the width of the wall and be supported across any cavity to prevent it sagging and holding water and joints in the DPC should be sealed against water penetration.

Pressed metal copings generally clip over concealed brackets fixed into the top of the wall or to a timber board fixed across the top of the wall. A jointing bracket should be provided under the junction between copings and should include an integral seal to form a watertight joint whilst still allowing thermal movement. It is also advisable to provide a DPC beneath the coping system in a similar manner to concrete or stone copings to provide secondary protection in the event of a leak through the joint.

Pressed metal can also be formed into 'cappings' which are secured with either exposed fixings through the metal, or concealed brackets. Joints are generally formed by overlapping one unit on to another and sealing with a site applied sealant. Due to the higher risk of water penetration through exposed fixings and site applied sealants the use of these types of cappings is not recommended.

The use of soft metal copings such as lead, or roof waterproofing membranes, as protection to the top of the parapet should be carried out in accordance with the product manufacturer's instructions or trade association good practice manuals.

Brick cappings should not be used for parapet walls on buildings due to the risk of water penetration through the numerous mortar joints and difficulty in providing effective drips and DPC layers whilst avoiding the creation of slip planes and risk of dislodgement.

Waterproofing masonry parapet walls to roofs and terraces

Where the waterproofing membranes to upstands extends to the level of the DPC under the copings, they should be dressed under and sealed to the DPC or covered by a flashing which is dressed under the DPC. Where a parapet wall extends above the level of the roof upstand a cavity tray should be introduced and lapped with the waterproofing membrane/flashing. The cavity tray should slope down and across the cavity to safely discharge any water in the cavity through the outer leaf via weep holes set at maximum 1000mm centres.

Where balustrading is included it is essential that its fixings are into parts of the structure that will resist the design forces on the balustrading. In the case of masonry parapet walls the inclusion of DPCs and cavity trays to provide protection against water penetration can create slip planes which may reduce the walls ability to resist lateral forces from any attached balustrading without that balustrading being built well into the wall. Any balustrade penetrations through the weathering to the top of a parapet wall will therefore involve holes through the coping/weathering, the DPC and possibly any cavity trays. Such penetrations are

difficult to make weathertight and have been a regular cause of water penetration defects and claims. Balustrade fixings through copings should therefore be avoided by either fixing into the vertical face of the wall or through the waterproofing layer to the roof/terrace.

Any fixings through the roof/terrace waterproofing must be suitably constructed by adopting such features as pitch pocket surrounds to the base of posts or by positioning posts on baseplates fixed on to the waterproofing, with suitable sealing pads between the baseplate and weatherproofing layer. The detail should not rely on site applied sealants to provide the long-term protection against water ingress through the fixing penetrations and should preferably use proprietary sealing pads. Where possible baseplate fixing should be made into a raised kerb that is above the level of the main drainage level.

Any metal to metal fixings should be non-corrosive to suit the environment and avoid a reaction between dissimilar materials. Fixings should also resist wind loads and all applied forces.

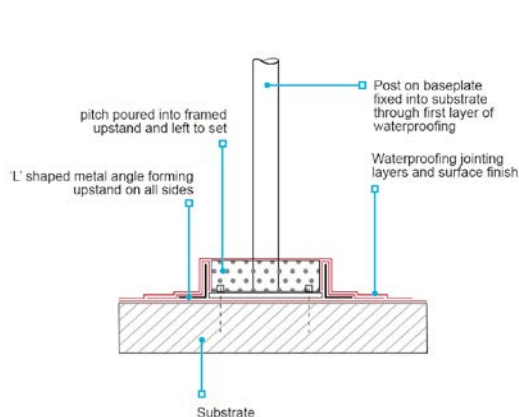
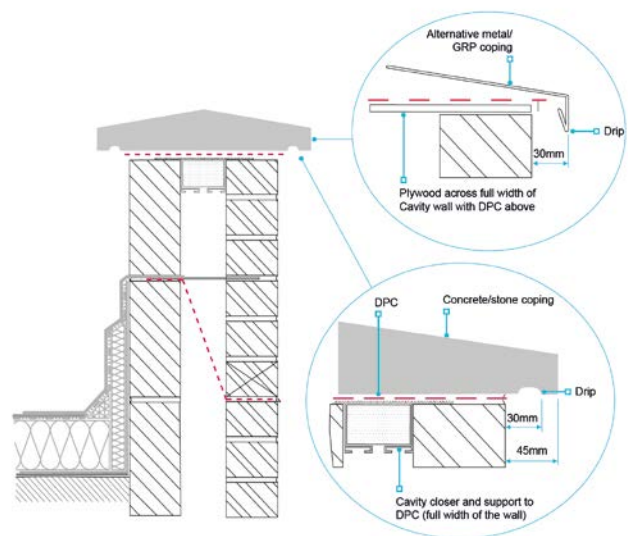


Diagram A: Pitch pocket sealing detail around post fixed to deck



You need to...

- Ensure safety critical fixings are identified by the Designer and appropriately installed by competent persons who are also supervised.
- Safety critical fixings should comply with the statutory requirements and NHBC's Technical requirement R3 and R5.
- Adequate quality control should be in place to capture the critical fixing installed and demonstrate the competency of the installers.
- Where the competencies of the installers cannot be demonstrated, proof testing of the fixings should be undertaken to demonstrate their adequacy.



Regulation and compliance



Who should read

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

Ban on combustible materials in buildings over 18m - an update on application

Introduction

Since the publication of Technical Extra 25 in August 2019, NHBC has been able to undertake more detailed research and industry liaison regarding elements of construction. A pattern has now emerged of regular queries relating to the application of Regulation 7(2) on the ban on combustible materials in external walls of 'relevant buildings'.

The following details provide the latest guidance on the application of the regulation, and updates some of the guidance previously provided in Technical Extra 25.

Any submission to NHBC for Building Regulation Compliance on a 'relevant building' should be in accordance with these principles; contact should be made with your NHBC Surveyor where clarification is required.

Requirements

The details below provide an update on the information provided within Technical Extra 25, and in some cases replace previous principles; however, they are generally complimentary and build upon those previous details.

In all situations, Regulations 7(2)-7(4) and the associated guidance with Section 10 of Approved Document B should be consulted.

Green Walls

Due to the nature of materials used in green walls, it is unlikely that many of them will be able to achieve European reaction to fire classification A1 or A2-s1, d0 tested in accordance with BS EN 13501-1:2007+A1:2009.

Cavity Trays

The exemption in Regulation 7(3) applies only to cavity trays used within a masonry wall construction. This must be a cavity wall consisting of two masonry leaves; therefore, cavities between a framed leaf and an external masonry clad leaf (or a masonry inner leaf with a clad outer leaf) would need cavity trays that are formed from materials achieving A1 or A2-s1, d0.

All other uses (including at low level where the cavity tray sits above a tanking system) must be formed from A1 or A2-s1, d0 materials.

NHBC has worked with some manufacturers for approval of certain trays meeting the classification, this is detailed further on page 22 in the article on cavity trays.

Ban on combustible materials in buildings over 18m - an update on application

Requirements (continued)

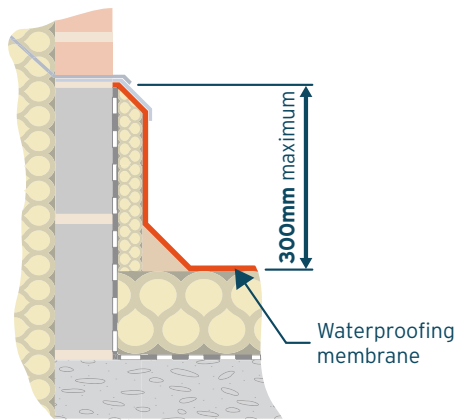


Diagram A: Waterproofing membrane upstand against adjacent wall

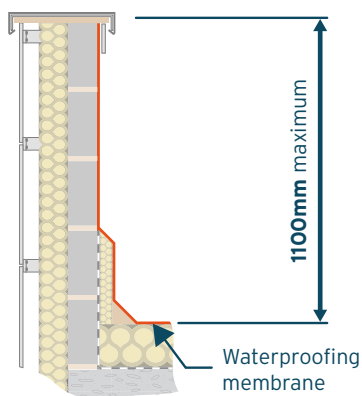


Diagram B: Waterproofing membrane dressed into parapet capping

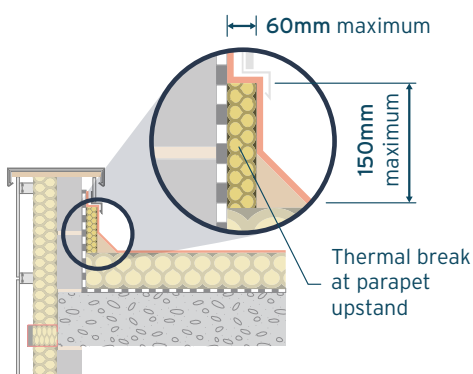


Diagram C: Thermal break at wall abutment

Membranes

NHBC understands that the exemption of membranes as detailed within Regulation 7(3) was due to the lack of membranes achieving A1 or A2-s1, d0 at the time it was drafted. NHBC is now aware that a limited number of A2-s1, d0 membranes are available for some applications and recommends these should be used wherever possible. This is in line with the Government's aim for safer buildings by removing as many combustible components as possible from the external walls of relevant buildings.

In the case of EPDM Membranes, NHBC considers that the adhesive is a necessary component and acceptable if it is kept to the minimum size possible to achieve the intended function.

For Waterproofing Membranes, NHBC recognises that they may need to lap vertically up an adjacent wall to perform their function. This is considered acceptable and should be kept to the minimum possible (typically no more than 300mm above the finished roof level / walking surface as indicated in diagram A). This should be read in association with the section on parapet walls/overruns and wall/roof abutments below.

Guidance on membranes is also given in Paragraph 10.15a of Approved Document B, Volume 1.

Parapet Walls, Lift and Stair Overruns

It is considered that a parapet wall is an extension of an external wall and subject to Regulation 7(2). This includes the 'reverse' side of the parapet wall. Likewise, lift and stair overruns are considered to be external walls and compliance with Regulation 7(2) is necessary.

It is normal to continue the roof waterproofing membrane up the reverse side of a parapet wall and dress it into the capping and is considered acceptable where its height above the roof does not exceed the guarding height of 1100mm as shown in diagram B.

Thermal Breaks

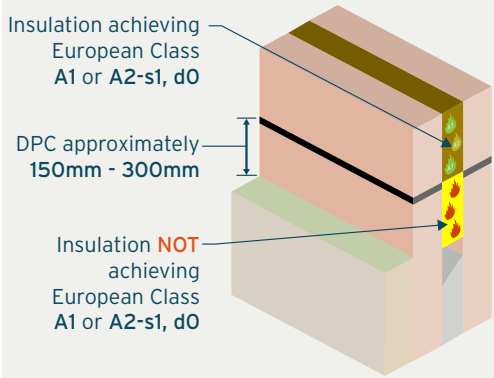
It is often a requirement to provide a thermal break at the point where a roof, balcony or terrace abuts an external wall. Combustible thermal breaks are an exclusion under Regulation 7(3) and would be considered acceptable if the following are satisfied (shown in diagram C):

- The abutment is not against a habited space
- The thermal break is no higher than 150mm above the finished roof level / walking surface
- The thermal break is no thicker than 60mm
- The thermal break does not span across a compartment line

Ban on combustible materials in buildings over 18m - an update on application

Requirements (continued)

✓ Example of a situation where combustible insulation **could** be included between ground and DPC level



✗ Example of a situation where combustible insulation **cannot** be included between ground and DPC level

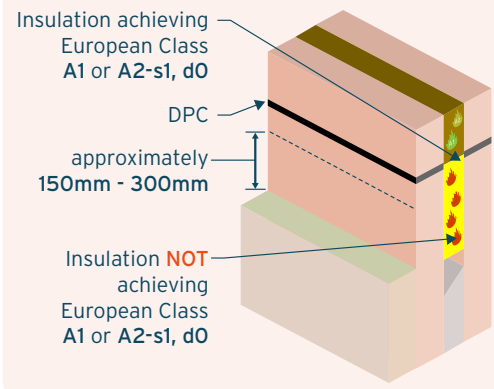


Diagram D: Combustible and non-combustible insulation in external walls between DPC and ground level

Insulation Between DPC and Ground Level

Where a DPC is close to the ground (typically around 150mm to 300mm above ground level) it could be considered acceptable to use combustible insulation in the 'splash zone' below it. However, where a DPC is significantly higher, then it would be inappropriate to allow the use of insulation which does not achieve class A1 or A2-s1, d0 below DPC level as shown in diagram D.

Electrical Installations

Electrical installations are listed within Regulation 7(3) and do not need to achieve classification A1 or A2-s1, d0. The Building Regulations defines electrical installations as "fixed electrical cables or fixed electrical equipment located on the consumer's side of the electricity supply meter"; therefore, any fixed electrical equipment or cables may be used in an external wall where required for a safe electrical installation.

Taped Sheathing Board

Some sheathing boards require the use of taped joints. The tape is principally there to act as a weather or airtightness seal and so, used to the minimum necessary quantities can be considered as an excluded item under Regulation 7(3).

Liner walls/sacrificial walls forming service voids and boxing for services

Sacrificial/false walls formed to provide a service void on external walls fall within the definition of 'external wall' and are therefore subject to Regulation 7(2). This would mean that anything within or forming the space will need to achieve A1 or A2-s1, d0 classification and could exclude the use of certain materials; timber battens, plywood, plastic piping, SVP's or RWP's for example. Localised SVP or duct enclosures may not fall within this criteria and could be considered for inclusion on an individual basis.

Balconies considered to be a 'specified attachment'

A 'balcony attached to an external wall' is defined as a 'specified attachment' and therefore, it is considered that the ban applies to the following as defined by BS 8579:2020 'Guide to the design of balconies and terraces', as illustrated in diagram E on the next page:

- Inset/internal/recessed balconies
- Projecting/external balcony
- Access Balcony
- Enclosed balconies (such as winter gardens) and inset terraces

The components of these balconies to be of A1 or A2-s1, d0 materials. Waterproofing materials would usually be classed as an exemption under Regulation 7(3); however, Requirement B4(2) still applies and Class BROOF(t4) membranes in accordance with BS EN 13501-5:2016

'Fire classification of construction products and building elements. Classification using data from external fire exposure to roofs test' would usually be expected.

Ban on combustible materials in buildings over 18m - an update on application

Requirements (continued)

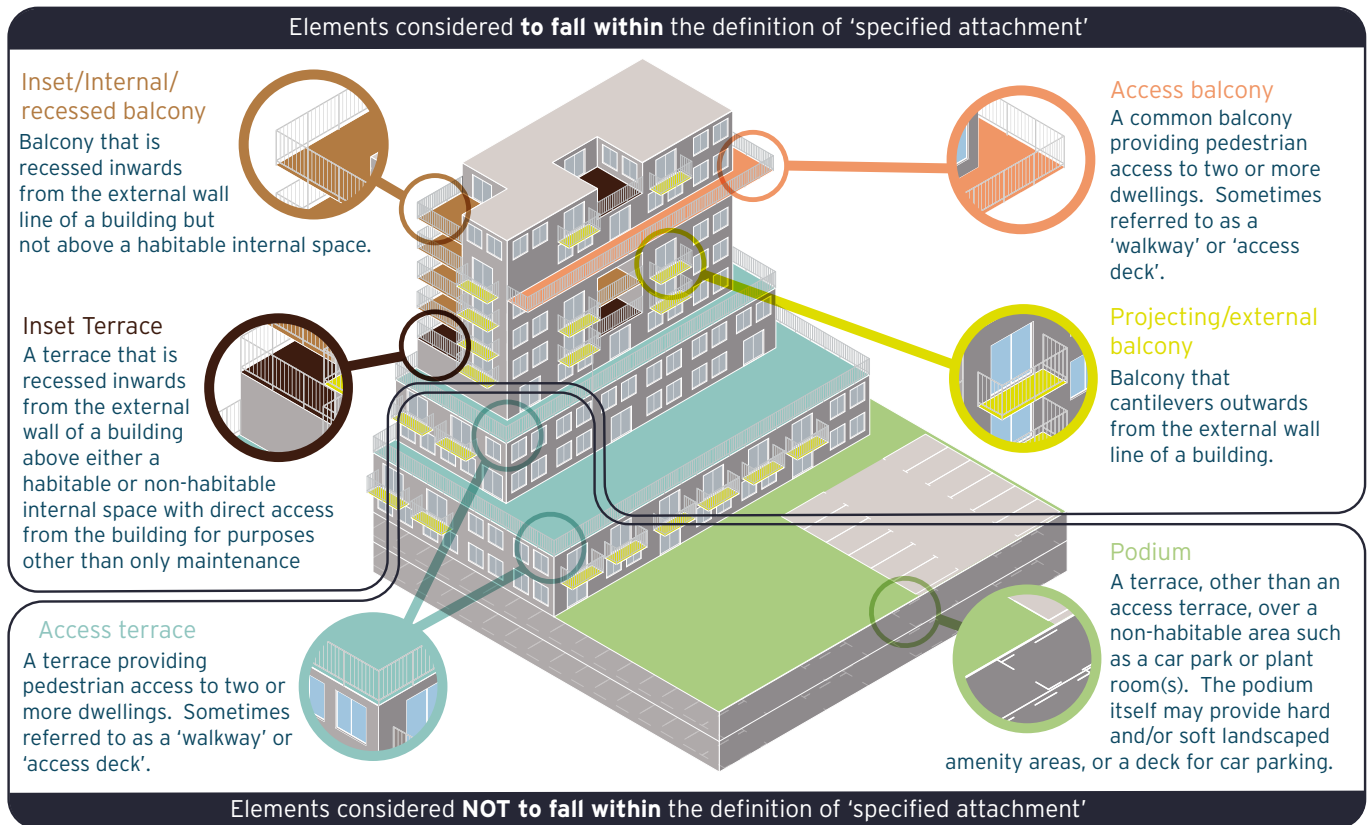


Diagram E: Elements of construction considered to be a 'specified attachment' and those that are not

Elements not considered to fall within the definition of 'specified attachment'

The following (illustrated in diagram E above) do not fit within the definition of either 'external wall' or 'specified attachment' and so, whilst not addressed by Regulation 7(2), need to be considered under Regulation B4:

- Access terraces
- Roofs
- Floors
- Podiums

As the issue is that of preventing fire spread up the walls, it is considered reasonable to adopt the guidance within diagram F below:

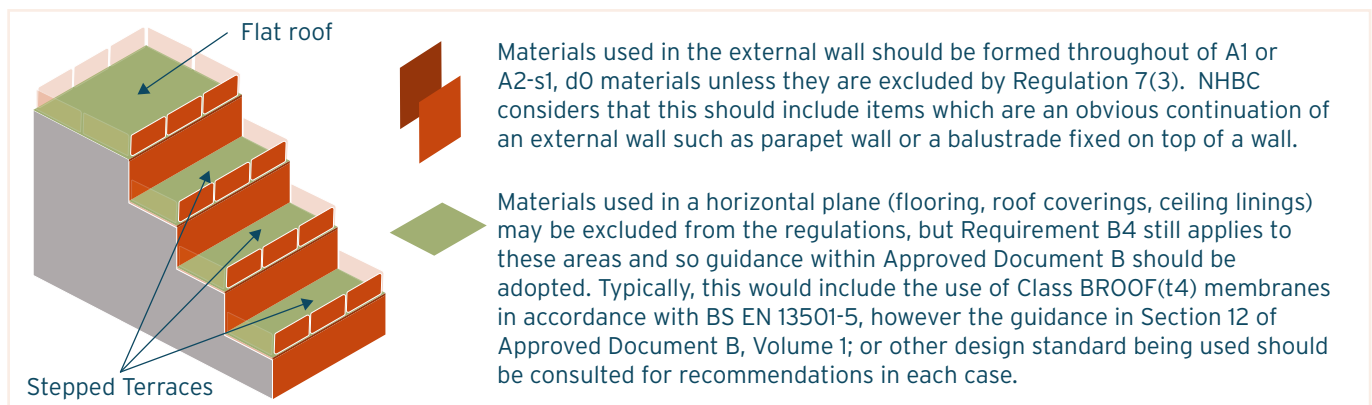


Diagram F: Application of principles to external walls/guarding and elements not considered as a 'specified attachment'

Ban on combustible materials in buildings over 18m - an update on application

Requirements (continued)

Laminated Glass Balustrades

Manufacturers have the option of testing and classifying their laminated glass product in accordance with BS EN 13501-1:2007+A1:2009 to achieve European reaction to fire classification A1 or A2-s1, d0. If evidence can be supplied of this, NHBC would expect to be able to accept the product.

MHCLG have stated that the use of laminated glass within attached and inset balustrades of a balcony is not exempt from the ban. NHBC also considers laminated glass balustrades provided over the line of an external wall or attached to the parapet which guards a balcony/access terrace to be part of the external wall and would not be acceptable unless compliance with Regulation 7(2) can be demonstrated.



You need to...

- Read the above in accordance with the details given in Technical Extra 25
- Ensure that external walls and 'specified attachments' of 'relevant buildings' meet the requirements of Building Regulations 7(2)-7(4)
- Ensure that combustible materials in the external walls of all buildings are limited to that necessary in accordance with Requirement B4
- Check any details are in accordance with the above considerations
- Consider consultation with your NHBC Surveyor if issues are anticipated

Sprinklers and wayfinding signage in blocks of flats with a floor more than 11m above ground



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



Introduction

In May 2020, the Ministry of Housing, Communities and Local Government (MHCLG) introduced an amendment to Approved Document B, volumes 1 and 2 that will require sprinklers and wayfinding signage in blocks of flats with a storey 11 metres or more above ground level.

The changes will take effect from 26 November 2020 with a short transitional period to 29 January 2021, and will only affect the approved guidance in England.

The changes are a result of an MHCLG consultation in 2019 and will mean the height of blocks of flats where sprinklers are required will reduce from 30m to 11m. Wayfinding signage was considered in the same consultation to assist firefighting operations by providing consistent floor identification on each level of the building.

The changes are part of the bigger review of building safety standards and regulation currently underway by the government; further consultations and changes are expected over the next few years to raise standards.

Requirements

Sprinklers

The 2019 consultation sought comments on changing the approved guidance following the call for evidence on changes to Approved Document B earlier in 2019.

The response to the call for evidence gave MHCLG a clear indication that there are multiple benefits in reducing the height for provision of sprinklers and changes to improve safety of occupants are therefore being implemented.

The main change is a re-word of paragraph 7.4 in Approved Document B, Volume 1; that replaces the 30m height with 11m. Sprinklers are required within every flat of the building, extended to other and specifically ancillary parts where compensatory measures are required by engineering assessment or alternative design standards.

Table B4 for minimum periods of fire resistance has been updated in both volumes to include the new category of 'up to 11' metres. This column is a copy of the 'up to 18' metre column in the existing guidance with further clarity that blocks of flats 'up to 18' and 'up to 30' meters will now need to be provided with sprinklers.

The only change is the trigger height, all other principles and application of the Building Regulations remain the same.

The principles for the trigger of the 11m threshold height is the same as wayfinding signage, this is explained in more detail on page 18.

Sprinklers and wayfinding signage in blocks of flats with a floor more than 11m above ground

Requirements (continued)

Wayfinding Signage

Similar to sprinklers, the new requirements for wayfinding signage is a result of the 2019 MHCLG consultation. MHCLG believes this would have immediate benefits to firefighter safety and intended as an immediate interim step. MHCLG have confirmed that additional policy options are being considered to improve access and facilities for fire and rescue services; therefore, further changes are anticipated.

There have been situations where firefighters have encountered difficulty in identifying floors and MHCLG believes that signage could be clearer to assist firefighting operations, whilst also benefiting all building users.

The guidance provided within paragraphs 15.13 to 15.16 of Approved Document B, Volume 1 aims to improve the consistency of floor/flat identification signage in blocks of flats with a floor 11m or more above ground level.

Type of signs

There are two types of sign that will be required, these are:

- **floor identification signs;** required to identify the floor of the building; and,
- **flat identification signs;** supplementary to the floor identification signs, required to indicate the flats contained on any particular floor.

An example of the type of signs is shown in diagram A (right).

Location of signs

Two locations are specified for the sign positions:



Diagram B1: View from a protected stairway

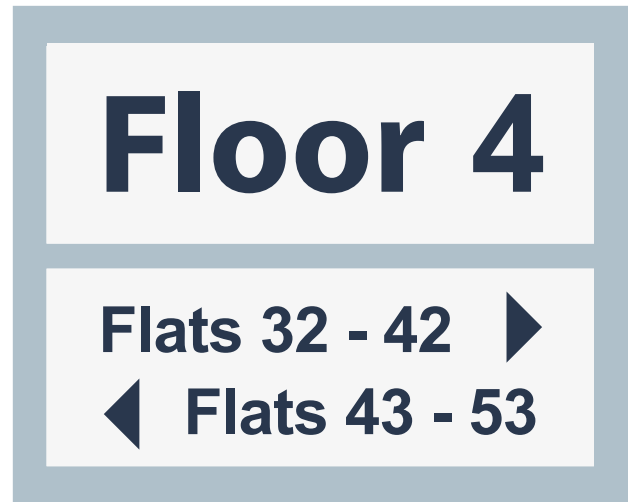


Diagram A: Floor and flat identification signs

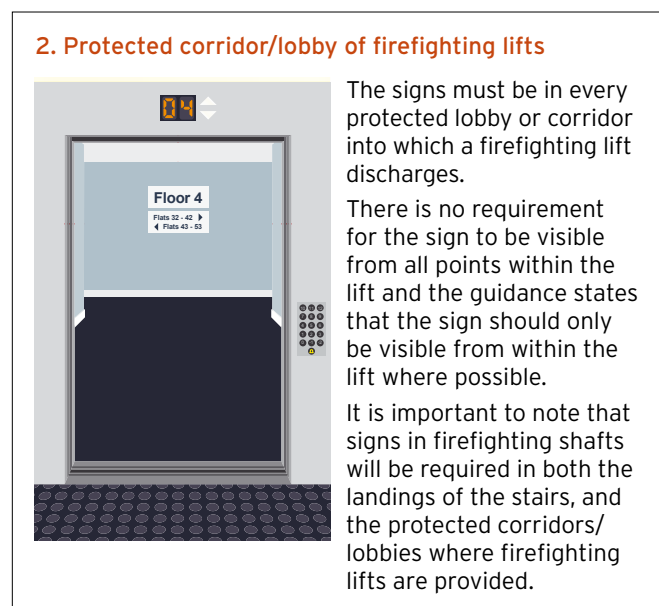


Diagram B2: View from a firefighting lift

Sprinklers and wayfinding signage in blocks of flats with a floor more than 11m above ground

Requirements (continued)

Height of signs

The floor identification sign will need to be positioned within a 300mm zone, located between 1700mm and 2000mm from the floor level of the landing, lobby or corridor as indicated in diagram C (right).

Supplementary flat identification signage will need to be provided directly below each floor identification sign. The distance between the two signs must be no more than 50mm as shown in diagram C.

Flats in more than one direction

Where flats are in more than one direction from the landing, lobby or corridor; arrows must supplement the flat identification words to indicate the direction of the flats.

No guidance is given on the type of arrow to be provided, however it should be clear when viewing the signs. This principle is illustrated in diagrams A, C or E.

Letter type

The letters will need to be a 'sans serif' typeface, this is a plainer type of letter without stylistic tails as opposed to a 'serif' typeface. 'Sans' translates from French to 'without', therefore this means 'without serifs'.

An example of a serif typeface is shown in diagram D, alongside the required 'sans serif' typeface. Note that these are examples only, familiarisation with the requirements will be necessary before any signs are ordered.

Letter sizes

Floor identification signs need to have a minimum height of 50mm for letters and 75mm for numbers. Flat sign letters should be at least half the height of the floor identification signs; therefore, these must be a minimum of 25mm for letters and 37.5mm for numbers as illustrated in diagram E below. However, if the floor letters are taller than the minimum size, the flat text will need to be increased to achieve the minimum 50% height.

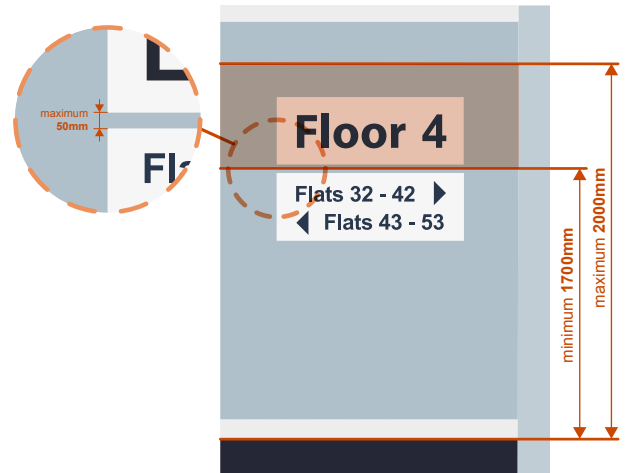


Diagram C: Height of signs and proximity of flat signs



Diagram D: Example of sans serif and serif typeface

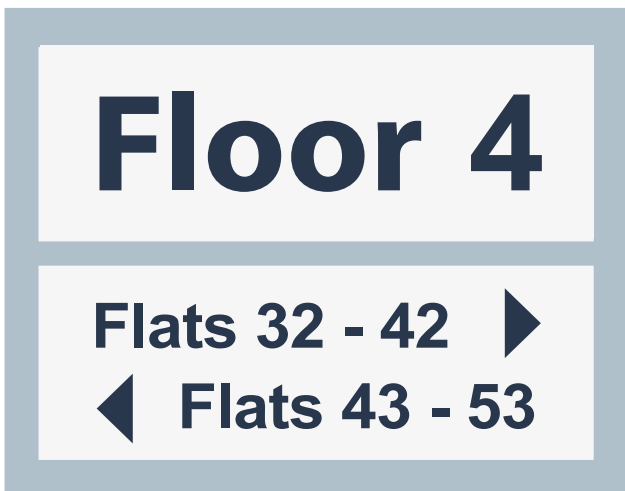


Diagram E: Example letter heights for floor and flat identification signage

Sprinklers and wayfinding signage in blocks of flats with a floor more than 11m above ground

Requirements (continued)

Legibility of signs

The guidance states that the text should be:

- on a contrasting background;
- easily legible; and,
- readable in low level lighting conditions or when illuminated by a torch.

No further guidance is given on this; however, considering the intended purpose, sufficient contrast between the letters and background must be provided in all lighting conditions.

Wording on the signs

For floor identification signs, the text 'Floor' is required followed by the floor number. This will start at 0 for the floor closest to the ground level and be numbered sequentially upwards. Likewise, floors below the ground level will need to be numbered

'Floor -1', 'Floor -2', etc. sequentially downwards. As an alternative, the ground floor and a lower ground floor can have those names; and for floors below ground level, 'Basement 1' etc. may be substituted. Note that ground floor or Floor 0 must be the level closest to the mean ground level in accordance with diagram D4 of Approved Document B, Volume 1. Possible options are illustrated in diagram F Below.

For flat identification signs, the text will need to take the form of 'Flat' followed by the flat numbers starting with the lowest flat number. Examples are shown on diagrams A, C or E.

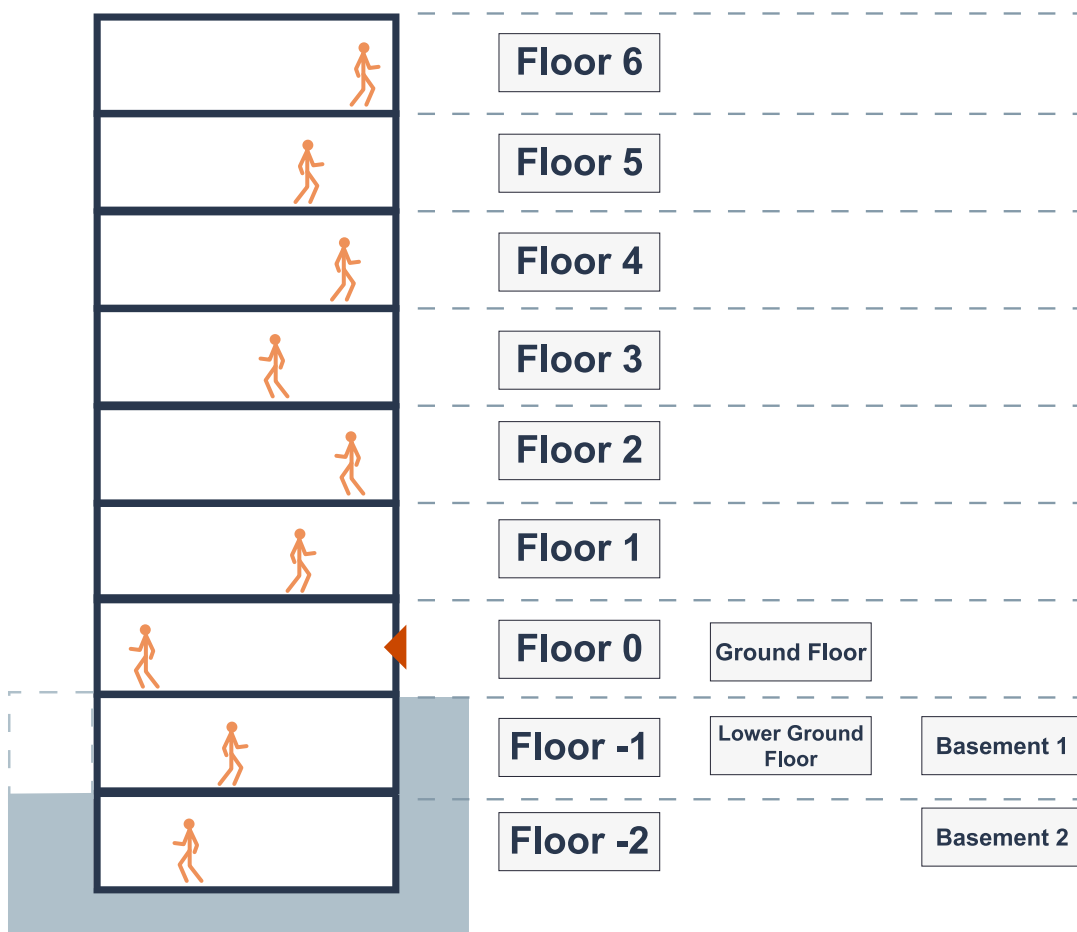


Diagram F: Example wording for floor identification signs

Sprinklers and wayfinding signage in blocks of flats with a floor more than 11m above ground

Requirements (continued)

11m trigger height for sprinklers and wayfinding signage

Application of the 11m threshold for sprinklers and wayfinding signage is measured from the upper floor surface of the top floor to the ground level on the lowest side of the building. The 'top floor' excludes roof-top plant areas or any top storeys consisting exclusively of plant rooms. The definition of 'Storey' includes 'A roof, unless it is accessible only for maintenance and repair'; therefore, if the top storey is a roof terrace, garden or other similar accessible space above 11m, the building will need to have sprinklers and wayfinding signage. An illustration of these principles is provided in diagram G below:

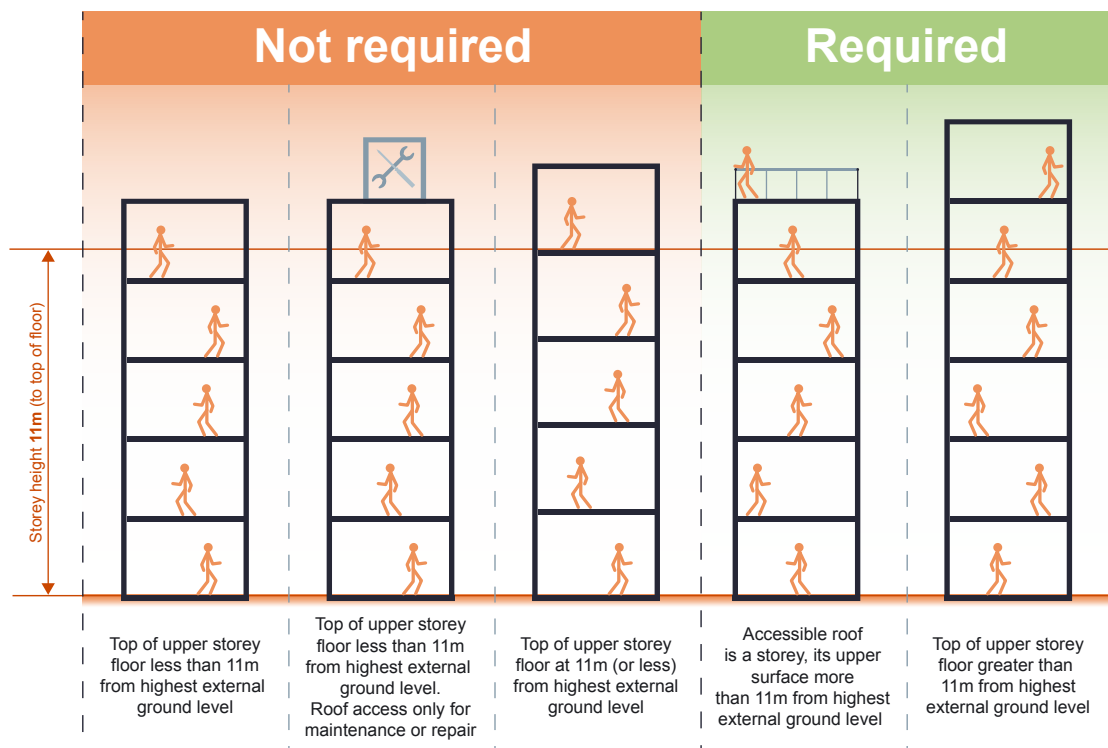


Diagram G: Example application of the 11m trigger height for sprinklers and wayfinding signage

Commencement and transitional provisions

The sprinkler and wayfinding signage changes will be apply to any initial notice given on, or after 26 November 2020, and to any initial notice given before this date where the works do not start before 29 January 2021. MHCLG have confirmed that the 'usual' work would constitute a start or commencement; this would be:

- Excavation for strip, trench, pad footings
- Digging out and preparation of ground for raft foundations
- Vibrofloatation (stone columns) piling, boring for piles or pile driving
- Drainage work specific to the building(s) concerned

A start on one part, or plot listed in an initial notice would constitute a start for the whole notice.

You need to...

- Check whether any upcoming applications will need to include the new provisions
- Ensure that you are familiar with the new height for sprinkler provision
- Ensure that you are familiar with the new guidance on wayfinding signage Consider consultation with your NHBC Surveyor if issues are anticipated

Non-combustible cavity trays

Who should read this:

Technical and construction directors and managers, architects, designers and site managers.

Introduction

In November 2018, the Ministry of Housing, Communities and Local Government (MHCLG) introduced amendment to the Building Regulations 2010 banning the use of combustible materials in certain buildings with a storey 18m or more above ground.

This resulted in changes to Regulation 7 in 2018, where all relevant buildings with a habitable floor over 18m high from ground level required non-combustible cavity trays as part of the external façade.

The house building industry has faced challenges in meeting this requirement and satisfying NHBC Standards.

The use of non-combustible materials for cavity trays is outside the scope of relevant industry standards including:

- NHBC Standards chapters 6.1 External masonry wall and 6.10 Light steel framing,
- PD 6697:2019 Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2,
- BS 8215 Code of practice for design and installation of damp-proof courses in masonry construction.

The main issue has been that, although there are various materials that can meet the requirements for non-combustibility, the other principal considerations of cavity trays and technical performance could not be determined and as such did not satisfy the Technical Requirements of NHBC Standards.

The principal design considerations for cavity trays acceptance include:

- a) Fire resistance
- b) Durability - the materials should match the planned design life of the building in which they are incorporated,
- c) Structural - the presence of a tray can reduce the shear and tensile, therefore, bending strengths of a wall at that point, and the design of the structure should take account of this:
 - 1) Creep deformation (compressive strength of the material to withstand the loads imposed on it),
 - 2) Shear stress (bond strength and resistance to deformation of the material to withstand shear stress) demonstrated by testing in accordance with BS EN 1052- 4,
 - 3) Flexural strength (bond strength of the material to prevent failure of the wall along the plane of the cavity tray) determined by flexural strength testing in accordance with BS EN 1052-4,
- d) Resistance to water: detailing of joints, changes of direction and(or) level to provide an impervious barrier against water from an external source (driving rain) or from one part of the structure to another,
- e) Accommodation of movement and tolerances,
- f) Minimising the effects of thermal bridging and localised heat loss,
- g) Compatibility,
- h) Installation procedure and quality assurance.

Non-combustible cavity trays

Several manufacturers have been working on gaining third party certification for their non-combustible products, however, there have been some delays in the testing of products due to Covid19 and it is not expected that any of these products will gain certification until 2021.

Requirements

In advance of this, and to take account of the unplanned delays in gaining certification, NHBC have worked with several manufacturers to agree an interim process whereby NHBC would accept the use of certain products ahead of certification where they have been able to demonstrate compliance with NHBC Standards.

NHBC has agreed the following interim measures with industry to allow the use of Non-combustible cavity trays ahead of third-party certification being achieved on a site by site basis.

- Manufacturers must have entered into a contract with a suitable third-party certification body and a statement of intent provided by the certification body.
- Details of manufacturers covered and any specific requirements for acceptance are available from NHBC. NHBC will continue to support the various manufacturers by collating a list of products acceptable to NHBC during this interim process.
- On each site the Non-combustible cavity trays are to be used, they are required to install the trays to a sample of the façade for benchmarking, demonstrating to NHBC that they can be built in accordance with the manufacturer's instructions. The sample should incorporate the following:
 - a) Manufacturers provided internal and external corners and stop ends
 - b) Suitable non-combustible weep hole
 - c) Availability of all tools and materials referenced within the installation guide.
 - d) QA sign off sheet
 - e) All trays correctly installed and fitted
 - f) Insulation correctly fitted above and below the tray
 - g) Cavity barrier installation above and below the tray
 - h) Tray details
 - i) All other details not covered by the standard installation details
 - j) Other details specific to the manufacture (details from NHBC Accepts)
- Site inspection and sign off. NHBC will inspect to check the cavity trays have been installed in accordance with the installation guidance and QA.

Changing Places toilets provisions in buildings other than dwellings



Who should read

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

Introduction

Following the Government's consultation on Changing Places toilets, amendments to Approved Document M, Volume 2 have been released that will apply to certain buildings from 01 January 2021.

The amendments relate to certain buildings other than dwellings and require enhanced facilities for individuals with complex and multiple impairments who may require the support of up to two assistants.

Requirements

The changes involve the replacement of the existing paragraph 5.6 and insertion of a new sub-paragraph 5.7(e) into Approved Document M, Volume 2. The new paragraph requires the installation of changing places toilet facilities in addition to any wheelchair-accessible accommodation in separate-sex toilet washrooms, wheelchair-accessible unisex toilet facilities and baby changing facilities.

Applicable building types

New sub-paragraph 5.7(e) lists the building types where at least one changing places toilet is to be provided, in summary:

- **Assembly, recreation and entertainment buildings** with a capacity of 350 or more people and sites with a collection of smaller buildings where the capacity is 2000 people or more. This would apply to zoos, theme parks and venues for sport or exhibitions for example.
Note: the new sub-paragraph 5.7(e) lists the types of buildings that can be defined as assembly, recreation and entertainment in the context of changing places toilets and should be consulted.
- **Shopping centres, malls or retail parks** with a gross floor area of 30,000m² or more.
- **Retail premises** with a gross floor area of 2500m² or more.
- **Sport and leisure buildings** with a gross floor area more than 5000m².
- **Hospitals and primary care centres.**
- **Crematoria and cemetery buildings.**

Changing places toilets requirements

Reference is made to section 18.6, diagram 48 and annexes F and G of BS 8300-2:2018 'Design of an accessible and inclusive built environment. Part 2: Buildings - Code of practice'; as well as the Changing Places Consortium campaign website (www.changing-places.org) for layout and equipment requirements.

This includes facilities such as a WC, hoist, basin, adult-sized changing bench and optional shower. For any building type listed in paragraph 5.7(e), referenced guidance will need to be reviewed to demonstrate compliance.

Commencement and transitional provisions

The changes will apply to any initial notice given on, or after **01 January 2021**, and to any initial notice given before this date where the works do not start before **01 March 2021**.

Further details

For further details, visit www.gov.uk for the amendment booklet/circulars; and www.changing-places.org for more detail on the requirements.

You need to...

- Check whether any upcoming applications will need to include the new provisions
- Ensure that you are familiar with the requirements for changing places toilets
- Consider consultation with your NHBC Surveyor if issues are anticipated

Composite light weight SIP lintels and arches with brick slips



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

Introduction

Composite lightweight SIP lintels and arches with arches need to meet NHBC Technical Requirement R3, Material requirement: All materials, products and building systems shall be suitable for their intended purpose. In particular materials and products used for critical functions require a satisfactory assessment by an appropriate independent technical approvals authority accepted by NHBC. More information is provided within Technical Guidance note 2.1/01.

Currently there are no composite light weight SIP feature lintels with third party certification however, NHBC have held constructive discussions with manufacturers in respect of NHBC's concerns with this type of component. We have also had discussions with independent technical approvals authorities. All parties have been very proactive with regards to the progress towards third party certification including durability testing of composite lightweight brick slip lintels.

NHBC has agreed the following interim measures with industry to allow the continued use of certain light weight SIP feature lintels ahead of third-party certification being achieved.

Requirements

Manufacturers must have entered into a contract with a suitable third party certification body and a statement of intent provided by the certification body by 31st December 2020.

The statement of intent must include the following information:

- *That the third party certification body is carrying out a full technical assessment of cement particle board SIP products clad with adhesively fixed brick slips for use as a decorative brick slip clad arch over openings in low rise buildings.*
- *The arch is to be supported by a load bearing steel lintel below.*
- *That it is expected that any durability testing required for assessment will be completed by 31st March 2021 and certification issued 30th June 2021 subject to the assessment process.*

NHBC will not accept any composite light weight SIP lintel or arch from the 31st December 2020 unless the backing SIP is of cement particle material, and a Statement of Intent is provided by a suitable third party approvals body that have agreed a testing regime with NHBC.

NHBC will not accept any composite light weight SIP lintel or arch from 31st March 2021 unless the third party certification body provides an interim statement confirming that the product achieves a 60 year durability.

NHBC will not accept any composite light weight brick slip lintel after 30th June 2021 unless it is supported by full third party certification.

NHBC will continue to support the various manufacturers by collating a list of products acceptable to NHBC during this interim process.

Fire integrity at Pre-Plaster Key Stage Inspection (Fire doors and linings)



Who should read this:

Technical and construction directors and managers, architects, designers, and site managers.

The Pre-Plaster Key Stage inspection is a long established, and effective opportunity to identify, amongst many other matters, defects relating to fire safety in 3 storey houses and in flats.

A key focus area is to check the correct installation of door linings/frames to fire door openings to ensure that any gaps between it and the wall structure are within tolerances, and that they are filled with the appropriate material/product to ensure fire integrity. This is absolutely critical if the fire door is to perform as certified.

However, there has been an increasing trend in recent years for builders to offer plots for a Pre-Plaster Key Stage Inspection without fitting the door linings/frames. Thus, it is not possible to check the compliance of this critical element.

Whilst we acknowledge there may be build practicalities to overcome, we do need to ensure that the fire integrity around fire door openings complies with Building Regulations and the only sensible stage at which this can be done is during the pre-plaster key stage inspection. This means that the linings/frames to fire doors will need to be fitted when the plot is offered for the Pre-Plaster Key Stage Inspection.

Our Building Inspectors will be asking to see this construction in place; if it's not there, they are being asked to record an Observation in the Site Record Book and discuss the issue with the site manager. There will be a transition period up to the end of 2020, during which time, where linings/frames to fire doors are not fitted, we'll make every effort to re-inspect the fire door lining/frame once installed and take photographs. From 1st January 2021 we will be authorising the Building Inspectors to record a Reportable Item for the missing work.

In the current climate, the fire performance of a building and the ensuring of all relevant protection being in place has extra sensitivity. We believe that the above working process is seen as the best way of working with our builder customers to ensure compliance.



Guidance and good practice



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

Non-structural pods

Introduction

There is a growing interest for pre-finished bathroom pods and utility cupboards, particularly in high-rise residential schemes, where offsite manufactured systems can provide benefits such as cost and time savings, reduced waste and site trades and a reduction in defects.

Offsite manufacture and the interface with site installations, however, is not without risk and the specification, design and installation should be carefully considered. In particular, the specification of components, M&E interfaces and the performance requirements of the pods in relation to fire, acoustics and access should be established at an early stage.

There is currently no standard method of assessment for the specification and production of pods and as such, NHBC requires evidence that systems delivered to site have been manufactured in controlled conditions and in accordance with NHBC standards.

Guidance

All components of the pods, even those manufactured or designed by non-UK manufacturers, should meet Technical Requirement R3 and the Construction Product Regulations.

Key bathroom ancillary equipment including baths, shower enclosures, WCs and WC suites, shower trays and enclosures, domestic baths and washbasins are all covered by harmonised European standards (hEN) and CE marked products must be specified. ETAG 022 can be used to CE mark watertight kits for wet room floors under a European Technical Assessment.

All service installations should be designed and tested to conform with the following guidance:

- Water supply to BS EN 8558:2015
- Drainage to BS EN 12056
- Electrical installation to BS 7671

Pods should be manufactured under a quality management system (QMS) that is certified by a UKAS-accredited, independent certification body against the requirement of ISO 9001:2015.

Design and Installation

Pods are generally of lightweight construction but must still be sufficiently rigid to resist the forces imposed during delivery, lifting and installation. Lifting points should be designed into the structure.

The manoeuvrability of the pods should also be considered, allow for floor heights to accommodate pods, plan and design access routes and allow space for final locating of pods and service connections.

Pods may provide partial acoustic ratings, but design will need to be considered on a project specific basis. Pods are also often unable to provide fire compartmentation and separately constructed compartment walls and additional linings will be required to achieve compliance. Compartmentation design within dwellings and, in particular, service connections from pod penetrating compartment walls (vent ducting etc.) should be carefully designed, making allowances for tolerances and suitable access.

Non-structural pods

Guidance (continued)

Written records should be provided for services tested in the factory installation. Once in its final position, connections should be made, and final testing and commissioning should take place before closing up. Ideally there should be suitable access provision to all key connection points and valves, however, if access points are to be permanently sealed (such as behind a tiled wall), suitable information should be made available for future users to allow quick and easy access in the event of a fault or for routine maintenance.

When transporting finished units, movements can affect both the exterior and interior fittings i.e. cracking of tiles and wall junctions or loosening of fixtures and fittings and hence a full snag of installed services and fittings should be undertaken upon delivery. After snagging is complete, consider fitting a temporary door to protect internal finishes during construction phase.



You need to...

- Check that all materials used meet NHBC standards Requirement R3.
- Check products meet the requirements of any relevant standards and any specific requirements for design and certification.
- Ensure that all units manufactured offsite are produced under an audited certification scheme.
- When designing pods as part of a scheme, give careful consideration to designing adequate access and tolerances for MEP connections and interfaces with site installations.



Information and support

Our in-house industry experts provide a wide range of impactful, insightful and practical Training courses, Apprenticeships and NVQs.

For further information go to <https://www.nhbc.co.uk/builders/products-and-services/training>.

Trade Talks

Learn about the most commonly reported items and defects found by inspectors and claims investigators in our one-hour Trade Talks.

Topics include:

- Brickwork and blockwork
- Foundations, ground floors and drainage
- Carpentry and joinery
- Pitched roofs
- Timber frame
- Dry-lining and plastering

For more information and to book a course, visit www.nhbc.co.uk/training



Technical News

New and updated Technical Guidance Documents

The following Technical Guidance notes were published in June 2020:

2.1/01 Independent technical approvals

This guidance note explains what an independent technical approval authority (ITA) needs to undertake to meet the NHBC R3 materials requirement.

8.1/32 Pipe insulation from combi boilers

This guidance note covers the insulation requirements for pipework between a combi boiler and a remote bypass valve.

NHBC training

For the latest news, updates and discussions, sign up to our dedicated group on LinkedIn – search for

'NHBC training academy' and join the conversation.

8.1/31 Protective equipotential bonding (PEB) of gas installation pipelines.

This guidance note explains where PEB is required following changes to the electrical regulations.

8.1/20 Soundproofing to soil and vent pipes (SVP's)

This guidance note has been revised to make it clearer when SVP's require sound insulation.

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/techzone.

Technical Extra

Previous editions of *Technical Extra* are available on our website at <https://www.nhbc.co.uk/builders/products-and-services/techzone/nhbc-standards/technical-extra>.

NHBC Standards

Buy printed copies at: <https://shop.nhbc.co.uk/technicalstandards> or access Standards Plus on the NHBC website at <https://nhbc-standards.co.uk/>.

NHBC 3D Viewer App

Scan the QR code below to download the NHBC 3D Viewer app (via the App Store and Google Play Store).



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 0344 633 1000 and ask for 'Customer Services'.

NHBC Accepts

Online resources for offsite and other non-conventional construction are available at www.nhbc.co.uk/accepts.

NHBC Foundation research

The NHBC Foundation facilitates research and shares relevant guidance and good practice with the house-building industry. Further information and details of our publications are available at www.nhbcfoundation.org.

Training

For information about training, please go to www.nhbc.co.uk/training, call 0344 633 1000 and ask for 'Training', or email training@nhbc.co.uk.

NHBC Clicks & Mortar e-newsletter

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

General enquiries

For all other enquiries, including ordering products and services, please call 0344 633 1000 and ask for 'Sales'.

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