Department of Finance | An Roinn Airgeadais

Amendments Booklet - AMD 7

Amendments to
Technical Booklet B
Technical Booklet C
Technical Booklet E

April 2022

Contents

Introduction

This Amendments Booklet has been prepared by the Department of Finance and contains clarifications and revisions to –

Technical Booklet B - Materials and workmanship: July 2013

Technical Booklet C - Site preparation and resistance to contaminants and moisture: October 2012

Technical Booklet E - Fire safety: October 2012

The changes to Technical Booklets B, C and E take effect from 1st April 2022 . The previous editions will continue to apply to work started before 1st April 2022, or to work subject to a building notice or full plans applications submitted before that date.

Amendments to Technical Booklet B – Materials and workmanship

(1) **Page 4**

Within the extract from the Building Regulations, in regulation 22 before "Harmful substances" insert –

""External wall" of a building includes a reference to—

(a) anything located within any space forming part of the wall;

(b) any decoration or other finish applied to any external (but not internal) surface forming part of the wall;

(c) any windows and doors in the wall; and

(d) any part of a roof pitched at an angle of more than 70 ° to the horizontal if that part of the roof adjoins a space within the building to which persons have access, but not access only for the purpose of carrying out repairs or maintenance.."

(2) **Page 4**

Within the extract from the Building Regulations, in regulation 22 after "Relevant work" insert –

""Specified attachment" means—

(a) a balcony attached to an external wall;

(b) a device for reducing heat gain within a building by deflecting sunlight which is attached to an external wall; or

(c) a solar panel attached to an external wall.."

(3) **Page 4**

Within the extract from the Building Regulations, for regulation 23 substitute –

"**Fitness of materials and workmanship**

23.— (1) In any relevant work—

(a) the materials used shall—

(i) be of a suitable nature and quality in relation to the purposes for and the conditions in which they are used;

(ii) be adequately mixed and prepared;

(iii) be applied, used or fixed so as adequately to perform the functions for which they are designed; and

(iv) not continue to emit any harmful substance longer than is reasonable in the circumstances; and

(b) the standards of materials and workmanship need be no more than are necessary to—

(i) secure the health, safety, welfare and convenience of persons in or about the building; and

(ii) further the conservation of fuel and power.

(2) Subject to paragraph (3), building work shall be carried out so that materials which become part of an external wall, or specified attachment, of a relevant building are of European Classification A2-s1, d0 or Class A1, classified in accordance with BS EN 13501-1:2018.

(3) Paragraph (2) does not apply to—

(a) cavity trays when used between two leaves of masonry;

(b) any part of a roof (other than any part of a roof which falls within paragraph (d) of the definition of 'External wall' in regulation 22), if that part is connected to an external wall;

(c) door frames and doors;

(d) electrical installations;

(e) insulation and water proofing materials used below ground level;

(f) intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part E;

(g) membranes;

(h) seals, gaskets, fixings, sealants and backer rods;

(i) thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part F; or

(j) window frames and glass.

(4) In this regulation—

(a) a "relevant building" means a building with a storey (not including roof-top plant areas or any storey consisting exclusively of plant rooms) at least 18 m above ground level and which—

(i) contains one or more dwellings;

(ii) contains an institution; or

(iii) contains a room for residential purposes (excluding any room in a hostel, hotel or boarding house); and

(b) "above ground level", in relation to a storey, means above ground level when measured from the lowest ground level adjoining the outside of a building to the top of the floor surface of the storey."

(4) Page 13

After paragraph 2.14 “Resistance to substances in the subsoil”, insert –

‘‘Materials in external walls of tall buildings

2.14A The Building Regulations restrict the use of combustible materials in the external walls of buildings with a topmost storey over 18 m in height. Refer to regulation 23 of the Building Regulations and to Technical Booklet E, Section 5 for details.”

(5) Page 16

After publication “BS EN ISO 9001: 2008 Quality management systems. Requirements.”, insert –

“**BS EN 13501-1: 2018** Fire Classification of construction products and building elements. Classification using data from reaction to fire tests.”.

Amendments to Technical Booklet C – Site preparation and resistance to contaminants and moisture.

(1) **Page 6**

Within the extract from the Building Regulations, in regulation 25(3), for the definition "Radon affected area" substitute –

""Radon affected area" means any area designated as such by Public Health England in the publication 'Radon in Northern Ireland: Indicative Atlas'; and".

(2) **Page 8**

In paragraph 0.4, delete "'*Radon in Dwellings in Northern Ireland: 2009 Review and Atlas*'" and substitute –

"'*Radon in Northern Ireland: Indicative Atlas',* of 2015,".

(3) **Page 15**

Delete paragraph 3.7 and substitute –

"3.7 Maps showing the probability of radon concentrations in dwellings in Northern Ireland are available in the Public Health England report '*Radon in Northern Ireland: Indicative Atlas',* of 2015.

This document is available as a free download from the UKradon website http://www.ukradon.org/information/ukmaps. The UKradon website also provides free interactive UK maps of radon (1 km grid indicative atlas).".

(4) **Page 15**

In paragraph 3.8, delete "the Health Protection Agency" and substitute –

"Public Health England".

(5) **Page 15**

Delete paragraph 3.9 and substitute –

"3.9 The areas where radon protection is required have been reviewed by the Department in the light of futher advice from Public Health England, working with the Geological Survey of Northern Ireland and the British Geological Survey.".

(6) **Page 15**

Delete paragraph 3.11 and substitute –

"3.11 Guidance on protective measures is given in the BRE produced publication, BR 211 *Radon: guidance on protective measures for new buildings.*

Note –

(i) This updated 2015 edition of guidance incorporates the indicative atlas maps (including Northern Ireland) for assessing the need and level of protection measures. Section 4 of the 2015 edition also considers the use of site-specific radon risk reports (where available);

(ii) The 2015 edition includes supplementary advice for *extensions, conversions and refurbishment* projects."

(7) **Page 16**

Delete "Table 3.1 Radon protection required" and substitute –

Table 3.1 Radon Protection Required

Radon risk shown on the radon map referred to in para 3.7 (probability of radon in a dwelling exceeding the Action Level)	**Radon protection[1] required**
0 – 1%	No protection required
1 – 3% 3 – 5% and 5 – 10%	Zone 1 measures (radon membrane required)
10 – 30% and greater than 30%	Zone 2 measures (membrane plus provision of subfloor depressurisation e.g. a sump and stub duct)

Note:

(1) BR 211 Radon: publication (referred to in para 3.11) provides guidance on determining the level of protection that is appropriate, along with details of protective measures for new buildings, and extensions etc.

(8) **Page 40**

Delete publication "Good Building Guide 73 Radon protection for new domestic extensions and conservatories with solid concrete ground floors, 2008."

(9) **Page 40**

After “Good Building Guide 73 Radon protection for new domestic extensions and conservatories with solid concrete ground floors, 2008” insert –

“Report 211 Radon: guidance on protective measures for new buildings.”.

(10) **Page 40**

Delete publication “Report 267 Major alterations and conversions: a BRE guide to radon remedial measures in existing dwellings, 1994.”.

(11) **Page 40**

Delete publication “Report 413 Radon: guidance on protective measures for new buildings in Northern Ireland, 2001.”.

(12) **Page 41**

Delete Publication “Health Protection Agency - Radon in Dwellings in Northern Ireland: 2009 review and atlas, 2009” and substitue –

“Public Health England report *Radon in Northern Ireland: Indicative Atlas,* 2015”.

Amendments to Technical Booklet E – Fire safety

(1) **Page 15**

In paragraph 0.13, delete sub-paragraph (a) and substitute –

"(a) if the external walls are constructed so that –

(i) the risk of ignition from an external source, and the spread of fire over their surfaces, is restricted by making provision for them to have low rates of heat release; and

(ii) the materials used to construct external walls and attachments to them in a building of any height and how they are assembled do not contribute to the rate of fire spread up the outside of a building.".

(2) **Page 15**

At the end of the second paragraph in 0.14 insert –

"The materials used for external walls and attachments to them, should not contribute to the rate of fire spread up the outside of a building.".

(3) **Page 20**

For the definition of "External Wall", substitute –

"**External Wall** – has the meaning assigned to it by regulation 22 in Part B of the Building Regulations.".

(4) **Page 22**

After the definition of "Relevant boundary", insert –

"**Relevant building** – has the meaning assigned to it by regulation 23(4) in Part B of the Building Regulations.".

(5) **Page 23**

After the definition of "Storey exit", insert –

"**Specified attachment** – has the meaning assigned to it by regulation 22 in Part B of the Building Regulations.".

(6) Page 25

After paragraph 1.6 "Property protection", insert –

"Performance of materials, products and structures

1.6A Much of the guidance in this document is given in terms of performance classifications in relation to British or European Standards. In such cases, it will be necessary to demonstrate that a system or product can meet the relevant performance classification. This will be achieved if the system or product –

(a) is in accordance with a specification or design that has been shown by a specific test to be capable of meeting that performance classification;

(b) has been assessed by applying relevant test evidence, in lieu of a specific test, as being capable of meeting that performance classification; or

(c) has been designed by using relevant design standards in order to meet that performance classification.

Note: Some products are subject to Classification Without Further Testing (CWFT). For the purposes of this technical booklet, such products can be considered to have been shown to be capable of meeting a performance specification as per paragraph 1.6A(a).

1.6B Any test evidence used to demonstrate the fire performance classification of a product or system should be carefully checked to ensure that it is applicable to the intended use. Small differences in detail, such as fixing method, joints, dimensions, the introduction of insulation materials and air gaps (ventilated or not), can significantly affect the performance.

1.6C Assessments should not be regarded as a way to avoid a test where one is necessay. Assessments should only be carried out where sufficient relevant test evidence is available. Relevant test evidence is unlikely to be provided by test standards which have different classification criteria.

1.6D Where it is proposed to assess the classification of a product or system in lieu of carrying out a specific test (as in paragraph 1.6A(b)), this should be done in accordance with the relevant standard for extended application for the test in question and should include details of the test evidence that has been used to support the assessment.

For performance classifications where there is no specific standard for extended application, assessment reports should be produced in accordance with the principles of BS EN 15725 and should include details of the test evidence that has been used to support the assessment. Further information on best practice is provided in the Passive Fire Protection Forum's *Guide to undertaking technical assessments of fire performance of construction products based on fire test evidence.*

Note: Regulation 23(2) limits components used in or on the external walls of relevant buildings to materials achieving European Classification A2-s1, d0 or Class A1 (see Section 5). Assessments cannot be used to demonstrate compliance with this requirement.

1.6E Tests and assessments should be carried out by organisations with the necessary expertise. For example, organisations listed as 'notified bodies' in accordance with the European Construction Products Regulation or organisations listed as 'UK approved bodies' under the UK Market Conformity Assessment Bodies (UKMCAB) may be appropriate. Laboratories accredited by the United Kingdom Accreditation Service (UKAS) for the relevant test standard can be assumed to have the necessary expertise. Clarification may be sought from UKAS to confirm the accreditation held is relevant and the scope and competence is sufficient.

Note: Standard fire tests do not directly measure fire hazard. They measure or assess the response of a material or system to exposure to one or more aspects of fire conditions. Performance in fire tests is only one of a number of factors that should be taken into account.

Reaction to fire

1.6F Reaction to fire relates to the degree to which a product will contribute by its own decomposition, to a fire under specified conditions. Under the European Classification system, products, other than floorings, are classified as A1, A2, B, C, D, E or F (with class A1 being the highest performance and F being the lowest) in accordance with BS EN 13501-1. Class F is assigned when a product fails to attain class E. Untested products cannot be classified in accordance with BS EN 13501-1.

1.6G The classes of reaction to fire performance of A2, B, C and D are accompanied by additional classifications related to the production of smoke (s1, s2, s3) with s1 indicating the lowest production. The classes of reaction to fire performance of A2, B, C, D and E are accompanied by additional classifications related to the production of flaming droplets/particles (d0, d1, d2) with d0 indicating the lowest production.

Note: When a classification includes s3, d2 this means that there is no limit set for smoke production and/or flaming droplets/particles.".

(7) Page 25

In paragraph 1.8, sub-paragraph (a) (i), delete "*building"*.

(8) Page 25

In paragraph 1.8 delete sub-paragraph (ii) and substitute –

"(ii) BS EN ISO 1716 *Reaction to fire tests for products – Determination of the gross heat of combustion*; or"

(9) Page 25

Delete paragraph 1.8 (b) and substitute –

"(b) a product made from one or more of the materials considered as Class A1 without the need for testing, as defined in Commission Decision 2003/424/EC and 2000/605/EC amending decision 96/603/EC of 4th October 1996 establishing the list of products belonging to class A1 'No contribution to fire' provided for in the Decision 94/611/EC implementing Article 20 of the Council Directive 89/106/EEC on construction products. None of the materials should contain more than 1.0% by weight or volume (whichever is lower) of homogeneously distributed organic material.".

(10) Page 123 - Replacement pages

Delete existing pages 123, 124 and 125 and substitute new pages (i), (ii), (iii), (iv) and (v) given in the Replacement Pages Section.

(11) Page 161

Delete publication "BS EN ISO 1182: 2002 Reaction to fire tests for building products. Non-combustibility test." and substitute –

"**BS EN ISO 1182: 2020** Reaction to fire tests for products. Non-combustibility test.".

(12) Page 161

Delete publication "BS EN ISO 1716: 2002 Reaction to fire tests for building products. Determination of the heat of combustion." and substitute –

"**BS EN ISO 1716: 2018** Reaction to fire tests for products. Determination of the gross heat of combustion.".

(13) Page 161

Delete year "2002" of publication BS EN ISO 11925:2002 Reaction to fire tests, Part 2: Single - flame source test and substitute —

"**2020**"

(14) Page 162

Delete year "2002" of publication BS EN 13823:2002 Reaction to fire tests for building products. Building products excluding floorings exposed to the thermal attack by a single burning item and substitute —

"**2020**".

(15) Page 162

After publication “BS EN 13823: 2002 Reaction to fire tests for building products. Building products excluding floorings exposed to the thermal attack by a single burning item.” insert –

“**BS EN 15725: 2010** Extended application reports on fire performance of construction products and building elements.”.

(16) Page 166

After publication “DOE Circular 12/92 Houses in multiple occupation.” insert –

“**Fire Performance of Green Roofs and Walls 2013 published by the Department for Communities and Local Government.**”.

(17) Page 166

After publication “Guide to fire precautions in premises used as hotels and boarding houses which require a fire certificate: published by the Home Office.” insert –

“**Guide to undertaking technical assessments of fire performance of construction products based on fire test evidence: published by Passive Fire Protection Forum 2021.”**.

Replacement Pages

The pages in this section are replacement pages for pages in the existing Technical Booklet E.

Delete existing pages 123, 124 and 125 and substitute new pages (i), (ii), (iii), (iv) and (v) given in this Section.

Section 5 External Fire Spread

5.1 This Section contains provisions relating to the design and construction of –

(a) external walls in order that –

(i) the risk of ignition from an external source to the outside surface of a building and the spread of flame over the external surface is restricted; and

(ii) the materials used to construct external walls and attachments to them and how they are assembled do not contribute to the rate of fire spread up the outside of a building; and

(iii) the spread of fire from one building to another is restricted; and

(b) roofs – in order that the risk of spread of flame and of fire penetration from an external source are restricted.

Fire resistance of external walls

5.2 The external walls of a building are elements of structure and other than those areas which may be unprotected (as determined in accordance with paragraphs 5.10 to 5.12) should have the appropriate period of fire resistance given in Section 4.

Combustibility of external walls

5.2A The external walls of a building should not provide a medium for fire spread if that is likely to be a risk to health and safety. Combustible materials, cavities in external walls and attachments to external walls can present such a risk, particularly in tall buildings. The guidance in this section is designed to reduce the risk of vertical fire spread in all buildings and the risk of ignition from external sources.

5.2B The external walls of buildings other than those described in Regulation 23(4) of the Building Regulations should achieve all the provisions given in paragraphs 5.3 to 5.4B which provide guidance on all of the following –

(a) external surfaces;

(b) materials and products; and

(c) cavities and cavity barriers;

External Surfaces

5.3 The external surface of an external wall (i.e. outermost external material) should meet the requirements given in Table 5.1A relevant to the height of the building and the distance between the building and the relevant boundary.

Materials and products

5.4 Where a building has a storey the floor of which is 18 m or more above ground level, any insulation material, and any filler material (such as the core materials of metal composite panels, sandwich panels and window spandrel panels but not including gaskets, sealants and similar) etc. used in the construction of an external wall should be Class A2-s3, d2 or better. This restriction does not apply to masonry cavity wall construction which complies with Diagram 4.5 in Section 4. Where Regulation 23(2) applies, that regulation prevails over all the provisions in this paragraph.

Note: Best practice guidance for green walls (also called living walls) can be found in *Fire performance of Green Roofs and Walls.*

Cavities and cavity barriers

5.4A Cavity barriers should be provided in accordance with paragraphs 4.36 to 4.42.

5.4B In the case of an external wall construction of a building which, by virtue of paragraph 4.40(d) (external cladding system with a masonry or concrete inner leaf), is not subject to the provisions of Table 4.7, the surfaces which face into cavities should also meet the provisions of Table 5.1A, and provisions for cavity barriers in Section 4, but where Regulation 23(2) applies, that regulation prevails over guidance provided in Table 5.1A and Section 4.

Table 5.1A Reaction to fire performance of external surfaces of walls

Building Type	Building height	Less than 1 m from the relevant boundary	1 m or more from the relevant boundary
'Relevant buildings' as defined in regulation 23(4)		Class A2-s1, d0(1) or better	Class A2-s1, d0(1) or better
Assembly and recreation	More than 18 m	Class B-s3, d2(2) or better	From ground level to 18 m: class C-s3, d2(3) or better From 18 m in height and above: class B-s3, d2(2) or better
	18 m or less	Class B-s3, d2(2) or better	Up to 10 m above ground level: class C-s3, d2(3) or better Up to 10 m above a roof or any part of the building to which the public have access: class C-s3, d2(3) or better(4) From 10 m in height and above: Class E-d2 or better
Any other building	More than 18 m	Class B-s3, d2(2) or better	From ground level to 18 m: class C-s3, d2(3) or better From 18 m in height and above: class B-s3, d2(2) or better
	18 m or less	Class B-s3, d2(2) or better	Class E-d2 or better

Notes:

In addition to the requirements within this table, buildings with a top occupied storey above 18 m should also meet the provisions of paragraph 5.4.

(1) The restrictions for these buildings apply to all the materials used in the external wall and specified attachments (see paragraphs 5.4C to 5.4F for further guidance).

(2) Profiled or flat steel sheet at least 0.5 mm thick with an organic coating of no more than 0.2 mm thickness is also acceptable.

(3) Timber cladding at least 9 mm thick is also acceptable.

(4) 10 m is measured from the top surface of the roof.

Regulation 23(2)

Materials

5.4C Regulation 23(1) requires that materials used in building work are appropriate for the circumstances in which they are used. Regulation 23(2) sets requirements in respect of external walls and specified attachments in relevant buildings.

Note: Guidance on Regulation 23(1) can be found in Technical Booklet B.

5.4D Regulation 23(2) applies to any building with a storey at least 18 m above ground level and which contains one or more dwellings; an institution; or a room for residential purposes (excluding any room in a hostel, hotel or a boarding house). It requires that all materials which become part of an external wall or specified attachment achieve European Class A2-s1, d0 or Class A1, other than those exempted by Regulation 23(3).

Note 1: The above includes any building that contains student accommodation, care homes, nursing homes, sheltered housing, hospitals, dormitories in boarding schools and places of lawful detention.

Note 2: The requirement in Regulation 23(2) is limited to materials achieving European Class A2-s1, d0 or Class A1. Therefore materials achieving limited combustibility cannot be deemed to meet the requirement using an alternative classification method.

Note 3: Products given in the Commission Decision 96/603/EC as amended by 2000/605/EC and 2003/424/EC can be considered to be class A1 without testing. These products may be deemed to meet the requirement.

5.4E External walls and specified attachments are defined in Regulation 22 and these definitions include any parts of the external wall as well as balconies, solar panels and sun shading.

5.4F Regulation 23(3) provides an exemption for certain components found in external walls and specified attachments.

Material change of use

5.4G Regulation 8 provides that, where the use of a building is changed such that the building becomes a building described in Regulation 23(4), the construction of the external walls, and specified attachments must be investigated and where necessary work must be carried out to ensure they only contain materials achieving European Class A2-s1, d0 or Class A1, other than those exempted by Regulation 23(3).

Further considerations for relevant buildings

5.4H The provisions of Regulation 23 apply in addition to the requirements of regulation 36. Therefore for buildings described in Regulation 23(4), the potential impact of any products incorporated into or onto the external walls should be carefully considered with regard to their number, size, orientation and position. Particular attention is drawn to the following points –

(a) membranes used as part of the external wall construction above ground level should achieve a minimum of European Class B-s3, d0;

(b) internal linings should comply with the guidance provided in Section 3 of this booklet.

(c) any part of a roof should achieve the minimum performance as detailed in the relevant paragraphs of Section 5 of this booklet;

(d) as per regulation 23(3), window and door frames and associated glass (including laminated glass) are exempted from regulation 23(2). Window spandrel panels and infill panels must comply with regulation 23(2);

(e) thermal breaks are small elements used as part of the external wall construction to restrict thermal bridging. There is no minimum performance for these materials. However, they should not span two compartments and should be limited in size to the minimum required to restrict the thermal bridging (the principal insulation layer is not to be regarded as a thermal break);

(f) regulation 23(2) applies to specified attachments. Shop front signs and similar attachments are not covered by the requirements of regulation 23(2), although attention is drawn to paragraph (g) below; and

(g) while regulation 23(2) applies to materials which become part of an external wall or specified attachment, consideration should be given to other attachments to the wall which could impact on the risk of fire spread over the wall.

Portal frames

5.5 Frequently, the provisions of Section 4 do not require the portal frames of a single storey building to have fire resistance except where the column members of those frames are within, or support, an external wall, which under paragraph 5.2, is required to have fire resistance. Where this occurs both the column and rafter members should have fire resistance, as the moment-resisting connections mean the portal frame acts as a single element. However, in the case of a steel portal frame which has been designed in accordance with the method set out in Fire and steel construction: *Single Storey Steel Framed Buildings in Fire Boundary Conditions*, only those members within or supporting an external wall requiring fire resistance, need have fire resistance.