

6.0 External walls, balconies, and ban on combustible materials in and on external walls

Updates to the guidance relating to fire spread over the external wall. This takes into consideration certain findings from the Grenfell Tower Inquiry, the 2022 call for evidence, and early research findings. The aim is to reinforce and clarify the guidance.

Ref ID	6.01
ADB Volume	1
ADB Paragraph Ref	Requirement B4
Title	Updating requirement B4
Current text – 2029 amendment	
<p>External fire spread</p> <p>B4. (1) The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another having regard to the height, use and position of the building.</p> <p>(2) The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regard to the use and position of the building.</p> <p>Regulation 7 – Materials and workmanship</p> <p>(1) Building work shall be carried out—</p> <p>(a) with adequate and proper materials which—</p> <p>(i) are appropriate for the circumstances in which they are used,</p> <p>(ii) are adequately mixed or prepared, and</p> <p>(iii) are applied, used or fixed so as adequately to perform the functions for which they are designed; and</p> <p>(b) in a workmanlike manner.</p> <p>(1A) Building work shall be carried out so that relevant metal composite material does not become part of an external wall, or specified attachment, of any building.</p> <p>(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 A1 (classified in accordance with the reaction to fire classification).</p> <p>(3) Paragraph (2) does not apply to—</p> <p>(a) cavity trays when used between two leaves of masonry;</p> <p>(b) any part of a roof (other than any part of a roof which falls within paragraph (iv) of regulation 2(6)) if that part is connected to an external wall;</p> <p>(c) door frames and doors;</p> <p>(d) electrical installations;</p> <p>(da) fibre optic cables;</p> <p>(e) insulation and water proofing materials used below ground level or up to 300mm above that level;</p> <p>(f) intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;</p> <p>(g) membranes;</p> <p>(h) seals, gaskets, fixings, sealants and backer rods;</p>	

- (ha) components associated with a solar shading device, excluding components whose primary function is to provide shade or deflect sunlight, such as the awning curtain or slats;
 - (i) thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1;
 - (j) window frames and glass; or
 - (k) materials which form the top horizontal floor layer of a balcony which are of European Classification A1fl or A2fl-sl (classified in accordance with the reaction to fire classification) provided that the entire layer has an impermeate substrate under it.
- (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 metres above ground level and which—
 - (i) contains one or more dwellings;
 - (ii) contains an institution; or
 - (iii) contains a room for residential purposes; 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.

Proposed text

Requirement

External fire spread

- B4. (1) The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another having regard to the height, use and position of the building.
- (2) The roof of the building shall adequately resist the spread of fire over the roof and from one building to another, having regard to the use and position of the building.

Regulation

Regulation 7 – Materials and workmanship

- (1) Building work shall be carried out—
- (a) with adequate and proper materials which—
 - (i) are appropriate for the circumstances in which they are used,
 - (ii) are adequately mixed or prepared, and
 - (iii) are applied, used or fixed so as adequately to perform the functions for which they are designed; and
 - (b) in a workmanlike manner.
- (1A) Building work shall be carried out so that relevant metal composite material does not become part of an external wall, or specified attachment, of any building.
- (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 A1 (classified in accordance with the reaction to fire classification).
- (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 (iv) of regulation 2(6)) if that part is connected to an external wall;
 - (c) door frames and doors;
 - (d) electrical installations;
 - (da) fibre optic cables;
 - (e) insulation and water proofing materials used below ground level or up to 300mm above that level;
 - (f) intumescent and fire stopping materials where the inclusion of the materials is necessary to meet the requirements of Part B of Schedule 1;
 - (g) membranes;
 - (h) seals, gaskets, fixings, sealants and backer rods;
 - (ha) components associated with a solar shading device, excluding components whose primary function is to provide shade or deflect sunlight, such as the awning curtain or slats;
 - (i) thermal break materials where the inclusion of the materials is necessary to meet the thermal bridging requirements of Part L of Schedule 1;
 - (j) window frames and glass;
 - (k) materials which form the top horizontal floor layer of a balcony which are of European Classification A1fl or A2fl-sl (classified in accordance with the reaction to fire classification) provided that the entire layer has an impermeate substrate under it; or
- (l) laminated glass product balustrades.*
- (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 metres above ground level and which—
 - (i) contains one or more dwellings;
 - (ii) contains an institution; or
 - (iii) contains a room for residential purposes; 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.

Ref ID	6.02
ADB Volume	1 & 2
ADB Paragraph Ref	Vol 1 (Sec 10) Vol 2 (Sec 12)
Title	Updating requirement B4
Current text – 2029 amendment	
Resisting fire spread over external walls	

The external envelope of a **building** should not contribute to undue fire spread from one part of a **building** to another part. This intention can be met by constructing **external walls** so that both of the following are satisfied.

- a. The risk of ignition by an external source to the outside surface of the **building** and spread of fire over the outside surface is restricted.
- b. 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 the **building**.

The extent to which this is necessary depends on the **height** and use of the **building**.

Resisting fire spread from one building to another

The external envelope of a **building** should not provide a medium for undue fire spread to adjacent **buildings** or be readily ignited by fires in adjacent **buildings**. This intention can be met by constructing **external walls** so that all of the following are satisfied.

- a. The risk of ignition by an external source to the outside surface of the **building** is restricted.
- b. The amount of thermal radiation that falls on a neighbouring **building** from window openings and other **unprotected areas** in the **building** on fire is not enough to start a fire in the other **building**.
- c. Flame spread over the roof and/or fire penetration from external sources through the roof is restricted.

The extent to which this is necessary depends on the use of the **building** and its position in relation to adjacent **buildings** and therefore the **site boundary**.

Proposed text

Intention

In the Secretary of State's view, requirement B4 is met by achieving all of the following.

Resisting fire spread over external walls *and roofs*

The external envelope of a **building** should not contribute to undue fire spread from one part of a **building** to another part. This intention can be met by constructing **external walls and roofs** so that all the following are satisfied.

- a. The risk of ignition by *flames through openings or by* an external source *and the risk of fire spread over* the *external wall and attachments* of the **building** is restricted.
- b. The materials used to construct **roofs, external walls**, and attachments to them, and *the manner in which* they are assembled *should not significantly contribute to fire growth and should not* contribute to the rate of fire spread *over* the outside of the **building**.
- c. *The amount of thermal radiation that falls on another part of the building (including the roof) from window openings and other unprotected areas or*

attachments to the wall does not contribute to the rate of fire spread to other parts of the building.

- d. *The risk of ignition by a source on the roof and the risk of flame spread over the roof is restricted.*

The extent to which this is necessary depends on *the fire strategy*, height, *access arrangements* and use of the *building*.

Resisting fire spread from one building to another

The external envelope of a *building* should not provide a medium for undue fire spread to adjacent *buildings* or be readily ignited by fires in adjacent *buildings*. This intention can be met by constructing *external walls and roofs* so that all of the following are satisfied.

- a. The risk of ignition by an external source to the outside of the *building* is restricted.
- b. The amount of thermal radiation that falls on a neighbouring *building* from window openings and other *unprotected areas* in the *building* on fire is not enough to start a fire in the other *building*.
- c. Flame spread over the roof and/or fire penetration from external sources through the roof is restricted.

The extent to which this is necessary depends on the use of the *building* and its position in relation to adjacent *buildings* and therefore the *site boundary*.

Reviewer Comment

Ref ID	6.03
ADB Volume	1
ADB Paragraph Ref	10.1 to 10.21
Title	Updating requirement B4
Current text – 2029 amendment	
Full re-write of Section 10.	
Proposed text	
<h2>Section 10: Resisting fire spread over external walls</h2>	
<h3>Introduction</h3>	
10.1	The <i>external wall</i> of a <i>building</i> should not provide a medium for fire spread if that is likely to be a risk to health and safety. Combustible materials and <i>cavities</i> in <i>external walls</i> and attachments to them can present such a risk,

particularly in tall buildings. The guidance in this section is *intended* to reduce the risk of fire spread *over the external envelope of the building*.

Fire resistance of external walls

10.2 This section provides guidance on resisting fire spread over external walls; however, it does not deal with fire resistance of external walls. An external wall may need fire resistance to meet the provisions of Section 3 (Means of escape – flats), Section 6 (Loadbearing elements of structure – flats), Section 11 (Resisting fire spread from one building to another) or Section 15 (Access to buildings for firefighting personnel – flats).

Combustibility of external walls and attachments

10.3 Buildings described in regulation 7(4) of the Building Regulations must follow the respective requirements of regulation 7(2) on the construction of the external walls and follow the provisions of paragraph 10.4a.

10.4 The external walls of all other buildings should achieve either of the following.

- a. Follow the provisions given in paragraphs 10.5 to 10.8, which provide guidance on all of the following.
 - i. External wall construction and external wall attachments materials and products.
 - ii. Cavities and cavity barriers.
- b. Meet the performance criteria given in BRE report BR 135 for external walls using full-scale test data from BS 8414-1 or BS 8414-2.

NOTE: The specification of cavity barriers should also consider the overlap with requirement B3(3) to reduce the potential for fire spread within the external wall system that may affect other parts of the building.

10.5 In relation to buildings of any height or use, consideration should be given to the choice of materials (including their extent and arrangement) used for the external wall, and any attachments to the wall (e.g. balconies, etc.), to reduce the risk of fire spread over the wall. *The design of the external wall system and associated material selection should be compatible with the fire strategy for the building.*

Construction of external walls and external wall attachments

10.6 The provisions for the reaction to fire class for external walls in Table 10.1 apply to all the components of the external wall system, such as the outermost product, any insulation product, and the backing and/or sheathing board product. The provisions also apply to any attachments, with specific provisions for balconies provided in paragraphs 10.9 to 10.11.

NOTE: For buildings other than those described in regulation 7(4), the provisions do not cover the structural system or the internal linings. In all cases, internal linings should follow the guidance provided in Section 4.

Table 10.1 Reaction to fire performance of external wall systems

<i>Building type</i>	<i>Top storey height (see Diagram D6 in Appendix D)</i>	<i>External wall construction and external wall attachments</i>
<i>'Relevant buildings' as defined in regulation 7(4)</i>		<i>A2-s1, d0 or better</i>
<i>'Residential' purpose group 1</i>	<i>More than 11m</i>	<i>A2-s1, d0 or better[†]</i>
	<i>11m or less</i>	<i>B-s3, d2 or better^{*†}</i>
	<i>Single storey with a building height less than 6m, measured to the top of the roof</i>	<i>D-s3, d2 or better[*]</i>
<i>'Residential' purpose group 2</i>	<i>More than one storey</i>	<i>A2-s1, d0 or better[§]</i>
	<i>Single storey with a building height less than 6m</i>	<i>B-s3, d2 or better^{*†}</i>
<i>Any other building</i>	<i>More than 18m</i>	<i>A2-s1, d0 or better[§]</i>
	<i>18m or less</i>	<i>C-s3, d2 or better^{*†}</i>
	<i>11m or less</i>	<i>D-s3, d2 or better[*]</i>

NOTES:

** The insulation product may be class F or better.*

† The backing and/or sheathing board product may be class D-s3, d2 or better when not exposed in a cavity and class C-s3, d2 or better when exposed in a cavity.

§ The backing and/or sheathing board product may be a minimum of class B-s3, d2.

- 1. In all cases, the following provisions apply.

 - a. Regulation 7(1A) prohibits the use of relevant metal composite materials in the external walls, and specified attachments, of all buildings of any height (see paragraphs 10.12 and 10.13).*
 - b. The advice in paragraph 10.5 should always be followed.**
- 2. Masonry or concrete cavity wall construction which complies with Diagram 8.2 in Section 8 is not restricted by the provisions of this table but has to comply with regulation 7(2).*
- 3. The following non-extensive components are exempt.

 - a. Insulation and water proofing materials used below ground level or up to 300mm above that level.*
 - b. Cavity trays when used between two leaves of masonry.*
 - c. Membranes that achieve a minimum of class B-s3, d0 or better.*
 - d. Seals, gaskets, fixings, sealants and backer rods.*
 - e. Any material achieving class A1fl or A2fl-s1 when it forms the top horizontal floor layer of a balcony and is provided with an imperforate substrate under it which extends to the full size of the class A1fl or A2fl-s1 material.**

- f. *Doors, door frames, window frames, and any glass used both in window panes and spandrel panels (including laminated glass as defined in regulation 2(6)(X)).*
 - g. *Balcony and window balustrades when the laminated glass complies with the exemptions of Regulation 7(3).*
 - h. *Components associated with a solar shading device, excluding components whose primary function is to provide shade or deflect sunlight, such as the awning curtain or slats.*
 - i. *Intumescent and fire-stopping materials or products where their inclusion is necessary to meet the requirements of Part B of Schedule 1 to the Building Regulations 2010.*
 - j. *Materials or products where their inclusion is necessary to meet the resistance to sound requirements of Part E of Schedule 1 to the Building Regulations 2010.*
 - k. *Thermal break materials or products where their inclusion is necessary to meet the thermal bridging requirements of Part L of Schedule 1 to the Building Regulations 2010.*
 - l. *Discrete, non-continuous electrical installations.*
 - m. *Fibre optic cables.*
4. *External walls that are on, or within 1000mm of the relevant boundary should follow the provisions of paragraph 11.8 for the reaction to fire class of the external outermost product.*

Cavities and cavity barriers

- 10.7 *Cavities could be incorporated within a system, or they could be formed as a space generated by the delamination, decomposition or differential movement of the system during a fire.*
- 10.8 *Cavity barriers should be provided in accordance with the provisions of Section 5 in **dwellinghouses** and Section 8 in **flats**. *This applies* for all relevant **buildings** and in all other **buildings**. *When paragraph 10.4b is followed, the relevant standards (e.g. BS 8414) might provide additional guidance to specify the cavity barriers in the external wall system and its interfaces with the building in order to ensure that requirement B4 has been satisfied. The minimum specification of cavity barriers to comply with regulation B3 (see Section 5) should be provided irrespective of any additional cavity barriers required to comply with Regulation B4.**

Balconies

- 10.9 *Buildings described in regulation 7(4) of the Building Regulations must follow the respective requirements of regulation 7(2) on the construction of the specified attachments.*
- 10.10 *In buildings of any occupancy and with a storey 18m or more in height (see Diagram D6 in Appendix D), in residential buildings (purpose group 1) with a storey over 11m in height and in multi-storey residential buildings (purpose*

group 2) balconies should only contain materials achieving class A2-s1, d0 or better, in accordance with the provisions of Table 10.1. The exemptions for laminated glass balustrades in Table 10.1 apply also for balconies.

10.11 In *any other building other than those described in paragraphs 10.9 and 10.10* balconies should meet either of the following conditions.

- a. Only contain materials or *products* achieving class A2-s1, d0 or better, *apart from the balustrade which can achieve class*
- b. Achieve *all* of the following conditions.
 - i. *Any decking construction should achieve class D-s1, d0 or better. If the decking extends beyond the boundary of a single compartment, then it should be interrupted by a band of construction using materials or products rated class A2-s1, d0 or better, for a minimum width of 300mm centred on that boundary line.*
 - ii. *Have an imperforate soffit that extends to the full area of the balcony, achieves a minimum of 30 minutes' fire resistance (integrity and insulation) and the soffit is constructed of materials or products achieving class A2-s1, d0 or better.*
 - iii. *The balustrade should only contain materials or products achieving class A2-s1, d0 or better.*

Metal composite materials

10.12 Regulation 7(1A) prohibits the use of relevant metal composite materials in the *external walls*, and *specified attachments*, of all *buildings* of any *height*.

10.13 Relevant metal composite materials are defined (in regulation 2(6)(c)) as any panel or sheet, having a thickness of no more than 10mm which is composed of a number of layers two or more of which are made of metal, alloy or metal compound and one or more of which is a substantial layer made of a material having a gross calorific value of more than 35MJ/kg when tested in accordance with **BS EN ISO 1716**. A substantial layer is defined as a layer which is at least 1mm thick or has a mass per unit area of at least 1kg/m².

Regulation 7(2) and requirement B4

Materials

10.14 Regulation 7(1)(a) requires that materials used in building work are appropriate for the circumstances in which they are used. Regulation 7(2) sets requirements in respect of *external walls* and *specified attachments* in relevant *buildings*.

NOTE: Further guidance on regulation 7(1) can be found in HM Government's Manual to the Building Regulations.

10.15 Regulation 7(2) applies to any *building* with a *storey* at least 18m above ground level (as measured in accordance with Diagram D6 in Appendix D) and which contains one or more *dwellings*; an institution; or a *room* for residential purposes. It requires that all materials which become part of an *external wall* or *specified attachment* achieve class A2-s1, d0 or class A1 in

accordance with BS EN 13501-1, other than those exempted by regulation 7(3).

NOTE: The above includes student accommodation, care homes, *specialised housing*, hospitals, dormitories in boarding *schools*, hotels, hostels and boarding houses. See regulation 7(4) for the definition of relevant *buildings*.

10.16 *External walls* and *specified attachments* are defined in regulation 2(6) and these definitions include any parts of the *external wall* as well as balconies, solar panels and solar shading.

10.17 Regulation 7(3) provides an exemption for certain components found in *external walls* and *specified attachments*.

Material change of use

10.18 Regulations 5(k) and 6(3) provide that, where the use of a *building* is changed such that the *building* becomes a *building* described in regulation 7(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 class A2-s1, d0 or class A1, other than those exempted by regulation 7(3).

Solar shading devices

10.19 Regulation 7(2) requires that the *curtain* and or slats of *solar shading devices* in a relevant *building* (as defined in regulation 7(4)) achieve class A1 or A2-s1, d0. The *awning curtain* of *solar shading devices* cannot be classified as a membrane in accordance with regulation 7(3).

10.20 *Solar shading devices* installed up to 4.5m above ground level are not required to meet the requirements of regulation 7(2).

Additional considerations

10.21 The provisions of regulation 7 apply in addition to requirement B4. Therefore, for *buildings* described in regulation 7(4), the potential impact of any products incorporated into or onto the *external walls* and *specified attachments* should be carefully considered with regard to their number, size, *fixing*, orientation and position.

10.22 Particular attention is drawn to the following points.

- a. Membranes used as part of the *external wall* construction *and specified attachments* above ground level should achieve a minimum of class B-s3, d0. Roofing membranes do not need to achieve a minimum of class A2-s1, d0 when used as part of a roof connecting to an *external wall*.
- b. Internal linings should comply with the guidance provided in Section 4.
- c. Any part of a roof should achieve the minimum performance as detailed in Section 12.
- d. As per regulation 7(3), window frames and glass (including laminated glass) are exempted from regulation 7(2). Window spandrel panels and infill panels must comply with regulation 7(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 7(2) only applies to **specified attachments**. Shop front signs and similar attachments are not covered by the requirements of regulation 7(2), although attention is drawn to paragraph 10.22g.
- g. While regulation 7(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.
- h. Any material achieving class A1fl or A2fl-s1 in accordance with BS EN 13501-1 is exempted when it meets both of the following conditions.
 - i. It forms the top horizontal floor layer of a balcony.
 - ii. It is provided with an impermeate substrate under it which extends to the full size of the class A1fl or A2fl-s1 material.

Reviewer Comment

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