



GUIDANCE DOCUMENT
Changes in Regulations and
Approved Documents Relating
to Fire Safety for Flat Roofs and
Balconies on 'Relevant Buildings'
in England

Introduction

Through dialogue with the Department for Levelling Up, Housing and Communities (DLUHC)* the flat roofing industry was encouraged to provide guidance and recommendations regarding changes to Building Regulations and compliance through Approved Document B (ADB). The flat roofing industry Trade Associations (LRWA/NFRC/SPRA) collaborated and worked with key industry stakeholders to develop this guidance document to assist those dutyholders involved in the specification and design of flat roofing and waterproofing systems in understanding the following:

Changes in legislation relating to fire safety

Implications for flat roofing and waterproofing membranes

* Previously known as Ministry for Housing Communities and Local Government (MHCLG)

Clarification on specific sections within ADB sections that relate to roofs that connect to external walls

Clarification on specific sections within ADB that relate to 'specified attachments'

In addition to following this guidance it is recommended that written clarification be sought from the appropriate approval authority prior to commencement of works as to what their requirements are. This would normally be the Building Control Authority responsible for the project or the Building Safety Regulator for High Rise Residential or Hospital Buildings above 18 metres and ideally included as part of the full plans Building Regulations application or equivalent.

Ban on Combustible Material & Update to Building Regulations for Fire Safety

The ban on the use of combustible materials in the external walls of High Rise Residential Buildings (HRRB's) with a storey of 18 metres or above was implemented through amendments to the Building Regulations 2010, which passed through parliament on 29th November 2018.

Subsequently in August 2019, a new edition of 'Fire Safety-Approved Document B' (ADB) became effective (further amendments were made in 2020 and 2022 including the introduction of new rules for residential buildings over 11m). The Approved Documents provide guidance on one way to demonstrate compliance to satisfy the Building Regulations. Part B of the Building Regulations in England covers fire safety matters within and around buildings. Approved Document B (ADB) is published in two volumes.

Volume 1 Dwellings

Volume 2 Buildings other than Dwellings

ADB B 2019 incorporated Requirement B4 Regulation 7(2) – the Government requirement to ban combustible materials as part of the external wall in buildings with a storey at least 18m above ground level that contain dwellings, institutions, or a room for residential purposes. These are referred to as 'relevant buildings' and include student accommodation, care homes, sheltered housing, hospitals, hostels, hotels, boarding houses, and school dormitories.

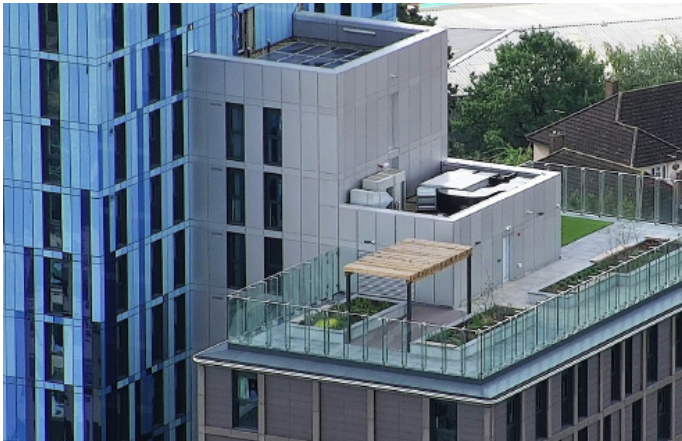
Regulation 7(2) also introduced a new term 'specified attachment' which was included in the ban of combustible materials along with parts of an external wall. The definition of a specified attachment is given in ADB Appendix A and includes a balcony attached to an external wall. Please note: Our interpretation is that ADB does not provide a definition of a balcony other than specified attachments, therefore we would recommend following the guidance set out in BS 8579:2020 regarding the definition of balconies other than where the balcony is a specified attachment.

The amendments require that materials which become part of an external wall or 'specified attachment' achieve Reaction to Fire Classification to European Class A1 or A2-s1, d0 (non-combustible) as set out in the standard BS EN 13501-1. Reaction to Fire measures how an individual product behaves when exposed to fire, and how the product continues to contribute to a fire as it decomposes as a result of that exposure. Please note that in the case of flat roofing the requirement is to have a system fire performance test BS EN 13501-5, not classification by individual components.

As of December 2022, where regulation 7(2) does not apply (less than 18m), specific guidance about balconies is in Volume 1 clause 10.10 and Volume 2 clause 12.11. The ban applies to all balconies part of buildings within Purpose Group 1 and 2 - Residential and with a storey 11m or more in height. Refer to Table 0.1 in ADB Volume 1 (p5-6) and Volume 2 (p5-7).

Note; Where storey height exceeds 18m, regulation 7(2) prevails over the provisions of Volume 1 clause 10.10 and Volume 2 clause 12.11 i.e. the balcony becomes a 'Specified Attachment'.

Definitions of External Walls and Specified Attachments as per Regulation 2



The external wall of a building includes a reference to:

1. anything located within any space forming part of the wall
2. any decoration or other finish applied to any external (but not internal) surface forming part of the wall (See guidance on page 4)
3. any part of a roof pitched at an angle of more than 70 degrees 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

'Specified attachment' means:

1. a balcony attached to an external wall
2. a solar panel attached to an external wall.

Notable exclusions to the ban shown in Regulation 7(3) which are relevant to flat roofing and external walls include:

- (b) any part of a roof (except if pitched above 70 degrees and 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) if that part is connected to an external wall (See guidance on page 4)
- (g) membranes
- (i) thermal break materials necessary to comply with Part L (See guidance on page 4)
- (k) materials which form the top horizontal floor layer of a balcony which are of European Classification A1fl or A2fl-s1 (sic s1) (classified in accordance with the reaction to fire classification) provided that the entire layer has an imperforate substrate under it

Fire Classifications for Roof Systems

To meet current building regulations for fire you need to demonstrate that the 'as installed' roof system has a valid fire certificate, tested in accordance with DD CEN/TS 1187:2012 Test Methods for External Fire Exposure to Roofs (Test 4) which covers External Fire Penetration and Spread of Flame.

A roof system when tested to TS 1187 Test 4 can receive a European classification rating of $B_{ROOF}(t4)$, $C_{ROOF}(t4)$, $D_{ROOF}(t4)$, $E_{ROOF}(t4)$ or $F_{ROOF}(t4)$ in accordance with BS EN 13501-5. Virtually all manufacturers and suppliers offering flat roof systems in the UK aim to achieve $B_{ROOF}(t4)$, because the roofing system can be used unrestricted from the proximity of the boundary.

Table 1 - Fire classification and corresponding guidance

European Class - BS EN 13501-5	National Class - BS 476-3	Minimum distance from any point on relevant boundary (England and Wales)
$B_{ROOF}(t4)$	AA, AB or AC	Less than 6m (unrestricted re adjacency to relevant boundaries)
$C_{ROOF}(t4)$	BA, BB or BC	At least 6m from the boundary
$D_{ROOF}(t4)$	CA, CB, or CC	6, 12 or 20m from the boundary depending on the size and usage of the building
$E_{ROOF}(t4)$	AD, BD or CD	6, 12 or 20m from the boundary depending on the size and usage of the building
$F_{ROOF}(t4)$	DA, DB, DC or DD	at least 20m from the boundary depending on the size and usage of the building

*ADB now principally refers to the European Class i.e. BS EN 13501-5 and the National Class is only referenced in the Annex for historic test data for those products which remain lawfully on the market.

Clarification on Specific Sections that Relate to External Walls that Roofs Connect to

Roof Details that Require 150mm Termination of the Waterproofing up an External Wall

'A question that has been highlighted by the post 2019 updates to ADB is "When is a wall a roof?". The area at issue is where the flat roof waterproofing abuts to an external wall or roof penetration and is traditionally dressed a minimum 150mm vertically and above the finished roof level/walking surface (as set out in BS 6229:2018).

The definition of a roof is 0-70 degrees - anything above is a wall. However, regulation 7(3) excludes any part of a roof connected to a wall except where it falls under Reg 2(6) Paragraph i.e. 'and part of a roof pitched at an angle of more than 70° to the horizontal if that part of the roof ajoins a space within the building to which persons have access, but not access only for the purpose of carrying out repairs or maintenance.'

In a letter from the Ministry of Housing, Communities and Local Government (MHCLG) Technical Policy Division, Building Safety Portfolio to the flat roofing industry (in November 2019) it was acknowledged that the part of the roof dressed up the wall is exempt but with no clarification on the extent i.e. max height.

"As you rightly point out, membranes are exempted from the requirements of Regulation 7(2) in Regulation 7(3) (g) with further guidance provided on membranes in ADBV1 Para 10.21(a) and ADBV2 Para 12.22(a).

However, parts of a roof connected to an external wall are exempted separately in Regulation 7(3) (b). No further limitations are placed in the guidance on parts of the roof which extend to the external wall other than achieving the performance recommended in other parts of the guidance with regards to the resistance of fire spread over the roof see section 12 in ADBV1 and 14 in ADBV2." (See bullet point 3 below).

A suggested sensible limit for parapets and lift/stair overruns would be approximately 1,100mm.

Clarification of Roof/Wall Thermal Break Detailing

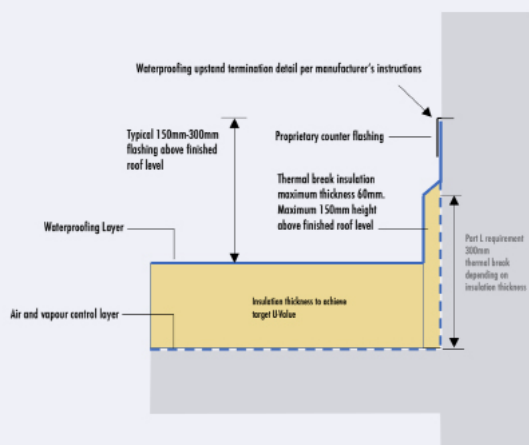
The flat roofing industry – working with other appropriate bodies – has developed some guidance that deals with supplemental queries about the insulation often used as part of the roof dressed up the wall, referred to as a 'thermal break.' Insulation on the face of the wall/abutment is usually a thermal break and subsequently exempt from the Regulation 7(2) through (Regulation 7(3)(i)). Therefore;

- The area 300mm above the roof deck, can be combustible (Class F or better), provided that it is no thicker than 60mm (deemed sufficient thickness for a thermal break) and does not span across a compartment wall line. (See diagram 1).
- Where the combustible insulation crosses a compartment wall it should be replaced with non-combustible (Class A2, s1-d0 or better) insulation for the width of the compartment wall. Practically, for ease of installation, consider installing non-combustible insulation for the entire length of the wall, see red line on diagram 2 for an example.
- Any insulant on the inner face of the wall, 300mm or more above the deck and greater than 60mm thickness needs to be non-combustible.

It is recommended that written clarification be sought from the appropriate authority, prior to commencement of works as to what their requirements are. This would normally be the Building Control Authority responsible for the project or the Building Safety Regulator for High Rise Residential or Hospital Buildings over 18 metres and ideally included as part of the full plans Building Regulations application or equivalent.

Diagram 1

Example of warm roof detail at external wall/abutment



Clarification on Specific Sections that Relate to 'Specified Attachments'

What is a Flat Roof and What is a Balcony?

The introduction of the term 'specified attachment' caused much misunderstanding regarding the definition of a balcony, and it appeared to contradict the European Commission Directive 2000/553/EC and Regulation 7(3) if the definition of a balcony is deemed to include an insulated roof. The flat roofing industry has worked with other relevant bodies to come to a common understanding which also mirrors BS8579:2020 "Guide to the Design of Balconies and Terraces". Attached balconies are differentiated from roof terraces in that they are not over habited and conditioned spaces and are usually bolted to, or cantilevering from, the external wall. This also includes most inset balconies. For the purposes of Approved Document B, balconies are not deemed to be roofs unless they are designated providing means of escape in which case they should be "fire performance $B_{ROOF}(t4)$ " as per BS 8579:2020. Please see number 9 on diagram 2 below.

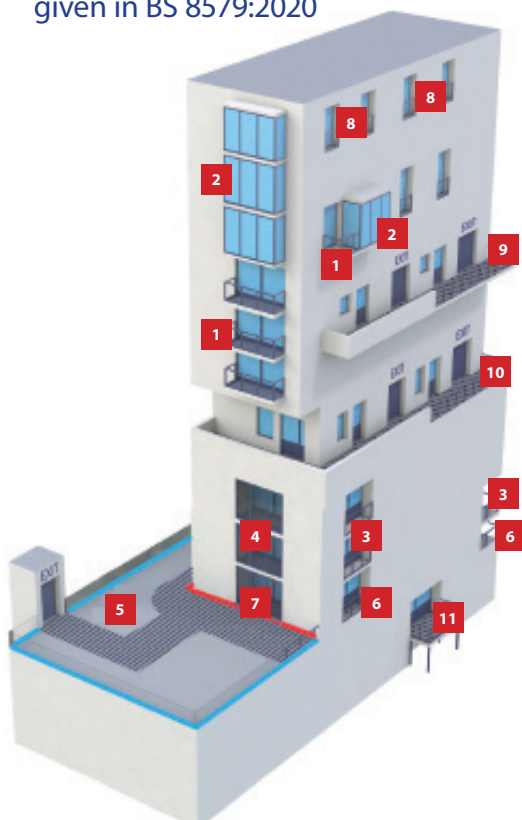
Waterproofing Membranes used on Balconies

For areas established correctly as balconies - 'specified attachments' on 'relevant buildings', Regulation 7(2) states that non-combustible materials should be used, however the waterproofing membrane is excluded from this by Regulation 7(3)(g). Further, ADB B4 Section 10.21 (Vol 1)/12.22 (Vol 2), contrary to many interpretations, does not mention or include for 'specified attachments'. Therefore, a typical roof waterproofing membrane can be used on balconies without the need to achieve a minimum class B-s3, d0.

To be compliant with BS 6229 Flat roofs with continuously supported flexible waterproof coverings. Code of practice, at all abutments the waterproof layer should be turned up to a level not less than 150mm above the adjacent finished roof system. This includes abutments to external walls. Practically, the provision of BS 6229 should take precedence over the provision of Requirement B4 to avoid issues – and subsequent insurance claims – caused by water ingress.







It is recommended that written clarification be sought from the appropriate authority, prior to commencement of works as to what their requirements are. This would normally be the Building Control Authority responsible for the project or the Building Safety Regulator for High Rise Residential or Hospital Buildings above 18 metres and ideally included as part of the full plans Building Regulations application or equivalent.

Diagram 2 : following the guidance given in BS 8579:2020



Key

1. Projecting open balcony
2. Projecting enclosed balcony
3. Recessed open balcony
4. Recessed enclosed balcony
5. Terrace
6. Recessed open terrace
7. Recessed enclosed terrace
8. Juliet guarding
9. Access balcony [can be referred to as 'access deck' or 'walkway']
10. Access terrace [can be referred to as 'access deck' or 'walkway']
11. Free-standing balcony

-  Terrace, access terrace and access balcony surfaces with fire performance $B_{ROOF}(t4)$
-  Imperforate (as BS 9991) guarding materials reaction to fire class
-  Other guarding materials reaction to fire class
-  Other guarding
-  Class A1 or A2-s1, d0 'non-combustible' Insulation
-  Class F or better Insulation

Summary

The changes to Approved Document B are applicable to 'relevant buildings' including High Rise Residential Buildings (HRRB's)

Roofs

Provided that your roof system achieves a $B_{ROOF}(t4)$ you can:

- Dress and terminate your waterproofing up a wall by typically 150-300mm and up to 1100mm for non-combustible parapet walls
- Have a choice of type of the insulation for a thermal break to many roof abutments in certain circumstances

Specified Attachments/Balconies

A balcony is not over a habited and conditioned space

Roof waterproofing membranes can be used on a 'specified attachment or balcony.'

For More Information:



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Disclaimer

LRWA/NFRC/SPRA and any contributors believe that the guidance and information contained in this guide is correct. All parties must rely on their own skill and judgement when making use of it.

This guide is not exhaustive and building designers will be required to check constructions against guidance for a number of functional standards. It is recommended that project specifics are discussed with the local authority and a qualified fire engineer, particularly when following alternative guidance or a fire safety engineered approach.

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