



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

Introduction

The Grenfell Tower fire of 14th June 2017 signalled a need for change within the UK construction industry. The tragic loss of life has led all to implement an unrelenting focus on fire safety within our residential buildings with a strong emphasis on the building envelope.

Through dialogue with Ministry of Housing, Communities and Local Government (MHCLG) the flat roofing industry were encouraged to provide guidance and recommendations regarding changes to Building Regulations and compliance through Approved Document B. The flat roofing industry (LRWA/NFRC/SPRA) have collaborated and worked with key industry stakeholders to develop this guidance document to assist those duty holders 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
- Clarification on specific sections that relate to roofs that connect to external walls
- Clarification on specific sections that relate to 'specified attachments'

We would recommend 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 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.

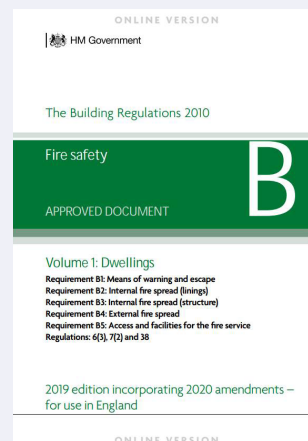
Subsequently in August 2019, a new edition of 'Fire Safety- Approved Document B' (AD B) became effective (a minor amendment was made in 2020). The Approved Documents provide guidance for satisfying the requirements of the building regulations in common building situations. Part B of the building regulations in England covers fire safety matters within and around buildings. Approved Document B is published in two volumes.

- Volume 1 Dwellings
- Volume 2 Buildings other than Dwellings

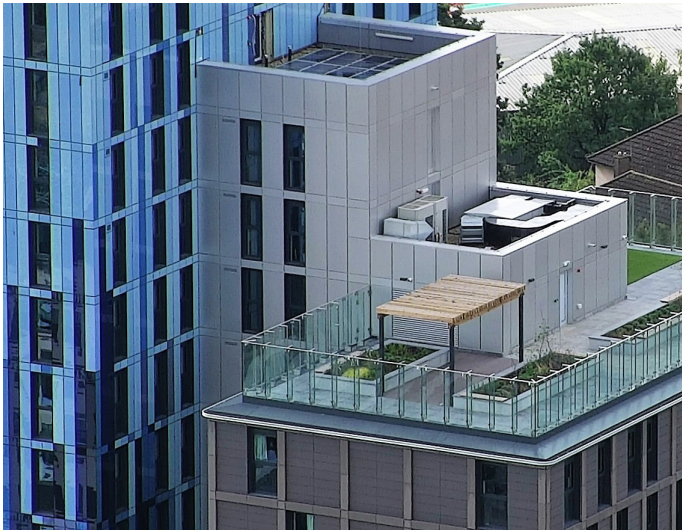
Approved Document B was amended to incorporate Requirement B4 Regulation 7 (2) - the Government requirement to ban combustible materials as part of the external wall in buildings containing dwellings or institutions or a room for residential purposes (excluding any room in a hostel, hotel or a boarding house) and these are now referred to as 'relevant buildings'. These 'relevant buildings' currently include student accommodation, care homes, sheltered housing, hospitals and school dormitories in buildings where there is a storey at least 18m above ground level. The scope of the above is currently under review including the height at which the combustible material ban applies.

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 given in Regulation 2 includes a balcony 'attached' to an external wall.

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, not by individual components.



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
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
- (g) membranes
- (i) thermal break materials necessary to comply with Part L

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 TS 1187 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 $B_{ROOF}(t4)$, $C_{ROOF}(t4)$, $D_{ROOF}(t4)$, $E_{ROOF}(t4)$ and $F_{ROOF}(t4)$ in accordance with BS EN 13501-5. Virtually all manufacturers and suppliers offering flat roof systems in the UK aim to achieve $B_{ROOF}(t4)$.

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 Annexe 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

An issue that has been highlighted by the new ADB that has existed for years and now needs to be clarified – “When is a wall a roof?”. The area at issue is where the flat roof waterproofing abuts a perimeter or roof penetration and is traditionally dressed a minimum 150mm 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.

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 exempt from the requirements of Regulation 7(2) in Regulation 7(3) (g) with further guidance provided on membranes in ADBV1 Para 10.15(a) and ADBV2 Para 12.16(a).

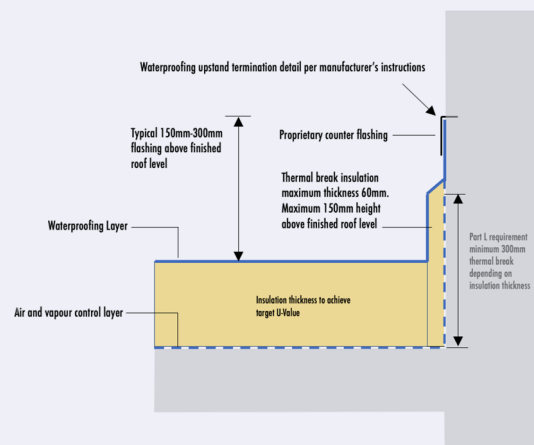
However, parts of a roof connected to an external wall are exempt separately in Regulation 7(3) (b). No further limitations are placed in the guidance on parts of the roof which extend to the external wall other than achieving the performance recommended in other parts of the guidance with regards to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

The Use of the Roof/Wall Thermal Break

The Flat Roofing Industry working with other appropriate bodies has developed some guidance which also deal with the 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 ban. Therefore, for the area up to 150mm above the roof finish/walking surface it can be combustible insulation provided that it is no thicker than 60mm (deemed sufficient thickness for a thermal break) and does not span across a compartment wall line or where this is adjacent to habitable space. For heights above this, the insulation is recommended to be non-combustible. A suggested sensible limit for parapets and lift/stair overruns would be approximately 1100mm.

Diagram 1

Typical warm roof detail at external wall/abutment



Clarification on Specific Sections that Relate to 'Specified Attachments'

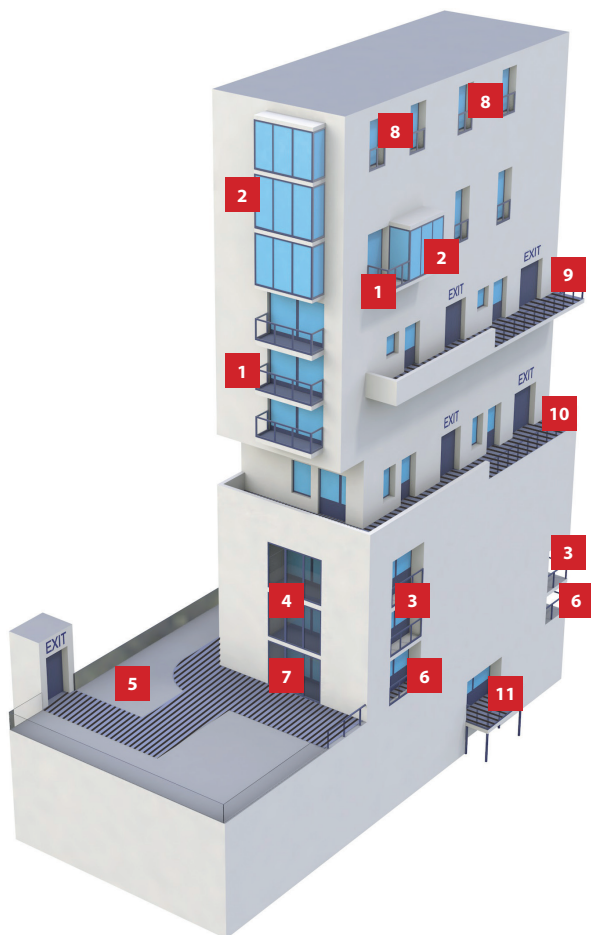
What is a Flat Roof and What is a Balcony?

This new term 'specified attachment' has caused much misunderstanding with what is the definition of a balcony, and it appears 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 the new 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 i.e. access balconies - see diagram 2.

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, but the waterproofing membrane is excluded from this by Regulation 7(3)(g). Further, ADB B4 Section 10.15 (Vol 1)/12.16 (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. However, as this is a balcony and not a roof, it is not allowable under Regulation 7(2) to terminate waterproofing up the external wall, but there are ways of creating a suitable detail in the form of an independent upstand dressed with the same waterproofing membrane, as the flat area, protected with a metal counter flashing.

Diagram 2



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 Roof (t4) or better
-  Imperforate (as BS 9991) guarding materials reaction to fire class
-  Other guarding materials reaction to fire class
-  Other guarding

Summary

- The changes to Approved Document B are applicable to 'relevant buildings' such as 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

Balconies

- A balcony is not over a habited and conditioned space
- Roof waterproofing membranes can be used on a 'specified attachment' i.e. a 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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