



Department
for Education

Technical review of Building Bulletin 100: Design for fire safety in schools

A call for evidence

Launch date 8 March 2019

Respond by 31 May 2019

Contents

Introduction	3
Scope of guidance	3
Who is this guidance for?	3
What types of buildings does the guidance apply to?	3
Who should respond to this call for evidence?	3
Issue date	4
Enquiries	4
The response	4
Deadline	5
Context	6
About this call for evidence	8
Scope of the review	8
Topics for consideration	10
Life safety measures	10
Life safety measures currently included in BB100 for school buildings	10
Combustible materials for external use	12
Fire safety management	12
Modern Methods of Construction (MMC)	13
Property protection measures	14
Fire suppression systems for property protection	15
Compartment floors	15
Special schools	16
Schools on constrained sites	16
Residential schools	17
Wider issues	17
Access and facilities for the Fire and Rescue Services	17
Fire engineering	17
Overall guidance format	18

Introduction

1. To ensure the Department for Education's (DfE) guidance to those who build schools is fit for purpose and aligns with the Ministry of Housing, Communities and Local Government's (MHCLG) wider review of fire safety, we are asking for views on Building Bulletin 100: Design for Fire Safety in Schools (BB100), ahead of a thorough review and full consultation.

Scope of guidance

Who is this guidance for?

2. BB100 is technical guidance primarily intended for those designing schools, in particular, technical specialists such as designers, contractors, building control officers (or equivalent) and fire safety officers.
3. Head teachers, governors, teaching staff, facilities, and maintenance staff will find it of interest to underpin their role as fire safety managers, but may also find alternative guidance, such as the government's guide on fire risk assessments in educational premises¹ more useful for advice on fire precautions.

What types of buildings does the guidance apply to?

4. BB100 is relevant to building types associated with schools, (as defined by section 4 of the Education Act 1996²), including nursery schools, maintained and academy schools, special schools, non-maintained special schools, independent schools and pupil referral units. It is also relevant to sixth-form colleges and 16-19 academies.

Who should respond to this call for evidence?

5. We would appreciate views from those with an interest in fire safety in schools and in particular:
 - School building designers, including fire engineers, and contractors;
 - Fire sector including building control bodies, Fire and Rescue Services and other fire safety officers;

¹ <https://www.gov.uk/government/publications/fire-safety-risk-assessment-educational-premises>

² "school" means an educational institution which is outside the further education sector and the higher education sector and is an institution for providing—(a) primary education, (b) secondary education, or (c) both primary and secondary education, whether or not the institution also provides part-time education suitable to the requirements of junior pupils or further education.

- Relevant professional bodies;
- Relevant trade organisations and manufacturers;
- Local authorities;
- Schools and their representative organisations including governing bodies, academy trusts, proprietors of schools, head teachers, as well as teaching staff, facilities and maintenance staff, who will find the guidance of interest in underpinning their role as fire safety managers.

Issue date

6. The call for evidence was issued on 08 March 2019.

Enquiries

7. If your enquiry is related to the content of the consultation you can contact the team by e-mail:
BB100.consultation@education.gov.uk
8. If your enquiry is related to the DfE e-consultation website or the consultation process in general, you can contact the DfE Ministerial and Public Communications Division by email: Consultations.Coordinator@education.gov.uk or by telephone: 0370 000 2288 or via the [DfE Contact us page](#).

Additional copies

9. Additional copies are available electronically and can be downloaded from [GOV.UK DfE consultations](#).

The response

10. The results of the consultation and the department's response will be [published on GOV.UK](#) later in 2019.

Respond online

11. To help us analyse the responses please use the online system wherever possible. Visit www.education.gov.uk/consultations to submit your response.

Other ways to respond

12. If, for exceptional reasons, you are unable to use the online system, for example because you use specialist accessibility software that is not compatible with the system, you may download a word document version of the form and email it or post it.

By email

- BB100.consultation@education.gov.uk

By post

Building Bulletin 100: Call for Evidence
Technical Support Division
Department for Education
Sanctuary Buildings
20 Great Smith Street
London
SW1P 3BT

Deadline

13. The consultation closes at midday on 31 May 2019.

Context

14. Safety in schools is of paramount importance and something the DfE takes very seriously. Schools are, however, already very safe buildings in the event of a fire, being primarily occupied during the day, and with multiple exit routes for swift, safe evacuation. All new school buildings, and where any significant building works take place, must comply with the requirements of Building Regulations. This includes fire safety. Once open and operational, all schools must comply with the Regulatory Reform (Fire Safety) Order 2005, ensuring that every effort is made to mitigate the risk of fire.
15. Since 2010/11 we have seen a steady reduction in the number of schools affected by deliberate fires and in 2017/18 incidents resulting in the loss of the whole, or significant proportions, of school buildings were minimal³. Clearly the loss of any school is an traumatic and devastating experience for its pupils and staff however, it is encouraging to see that these impacts, across the whole school estate, are reducing.
16. In 2016/17, the department worked with the fire sector to update BB100, following concerns regarding a draft revision shared through a closed technical consultation. This work was paused in June 2017, following the tragic Grenfell Tower fire, and we feel that it is important we take into account the latest views and positions on fire safety before any further work to revise BB100 continues. This is why the Secretary of State for Education has commissioned a full review of the guidance.
17. On 18 December 2018, the government published its implementation plan for the Independent Review of Building Regulations and Fire Safety undertaken by Dame Judith Hackitt (Hackitt Review⁴). Alongside this, MHCLG published their call for evidence review of AD B⁵. The window for responses on the technical review of AD B closed on 1 March 2019. Following the lead of wider government, we are launching this technical review of BB100, which will be wide ranging and comprehensive. Please note we will be sharing relevant information between departments as our respective reviews progress.

³ According to Home Office fire statistics in 2017/18 there were 10 school fires (of which 6 were deliberate). This is based on records for occupied (not vacant, rather than out of hours) schools ('pre-school/nursery/infant/primary' and 'secondary' categories), where the spread of fire affected the whole building or more than 2 floors:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/748918/other-building-fires-dataset.ods

⁴ <https://www.gov.uk/government/publications/building-a-safer-future-an-implementation-plan>

⁵ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/767919/Call_for_Evidence_ADB.pdf

18. The government has recently issued a ban of combustible materials in the external walls of buildings over 18 metres, where children and young people sleep, including student accommodation and dormitories in boarding schools. The DfE has also committed to ensuring new school buildings, over 18 metres, built as part of our centrally delivered build programmes do not use combustible materials in the external walls, in line with the terms of the ban. We will be updating our technical specification for new and refurbished schools to reflect this in May 2019. In the meantime, where feasible and practical, any current school proposals for buildings over 18 metres will be expected to comply with the terms of the ban.

19. The Grenfell Tower Inquiry may identify issues relevant to this review and the government will take these into consideration.

About this call for evidence

20. The Secretary of State for Education is committed, as part of wider work on fire safety across government, to work with the Secretary of State for Housing, Communities and Local Government to join up our reviews of fire safety guidance.
21. Following the tragic Grenfell Tower fire and wider work across government on fire safety, the Secretary of State for Education has decided to revise and update BB100.
22. This call for evidence is a key first step in the technical review of BB100. It will be used to set the agenda and programme for reviewing the guidance. It is intended to provide respondents with the opportunity to put forward proposals for changing and updating BB100. The DfE will consider responses carefully. Following the call for evidence, we will work with a technical expert group and a stakeholder consultation group to update the guidance, ready for consultation on a revised draft, prior to publication.

Scope of the review

23. DfE is calling for evidence on non-statutory departmental guidance BB100, published in 2007. BB100 provides technical advice on fire safety design for the erection, extension or material alteration of school buildings⁶ and the conversion of other building types to school use, to satisfy the requirements of the Building Regulations.
24. The department is working closely with MHCLG, who is leading a technical review of Approved Document Part B: Fire Safety, (AD B). AD B provides statutory guidance on how compliance can be achieved with the functional requirements set out in Paragraphs B1 – B5 of Schedule 1 to the Building Regulations 2010⁷. AD B refers to other guidance documents for some building types such as schools and hospitals.
25. The current BB100 guidance includes tools, which support designers to undertake a risk assessment to identify whether or not fire suppression systems

⁶ Schools, (as defined by section 4 of the Education Act 1996⁶) including nursery schools, maintained and academy schools, special schools, non-maintained special schools, independent schools and pupil referral units. It is also relevant to sixth-form colleges and 16-19 academies.

⁷ In accordance with the Building Act 1984, the document is approved by Secretary of State of MHCLG in providing practical guidance with respect to the requirements of the Building Regulations

should be included for property protection purposes. In tandem with this call for evidence, we will be seeking support from the fire safety industry to convene a technical expert group who work with the department to carry out a full review of the tools. Once revised and agreed with the technical expert group, we will of course be seeking wider views on the tools, alongside the revised guidance, as part of a full public consultation.

Topics for consideration

26. In this section, we have listed those issues that we have already identified for consideration and inclusion in the review. Respondents are invited to comment and provide supporting evidence on these topics but also to offer other topics for inclusion in the review. A final statement on what topics will be reviewed, and the programme for doing so, will be made after responses to this call for evidence have been considered. The topics considered in this call for evidence cover life safety, property protection measures and wider issues.

27. In developing this non-exhaustive list of topics for consideration, the government has drawn on and taken into account a number of pieces of work and programmes underway.

28. We are interested in receiving information for each measure covering the following questions:

- What issues need to be reviewed?
- Why should they be reviewed?
- What evidence already exists?
- What are the potential impacts of change?

Life safety measures

29. Building Regulations are intended to ensure that building works achieve a reasonable life safety standard. In practice, this means that a building's fire safety measures needs to ensure all occupants can evacuate safely. The legal requirement for life safety provision is for building designers to comply with Building Regulations. In this section, we are focusing on life safety measures, (property protection is covered from para 39) but note that some life safety measures can also provide property protection benefits.

Life safety measures currently included in BB100 for school buildings

Sprinklers

30. The safety of pupils and staff is paramount. Schools have a range of fire protection measures and new schools undergo thorough checks while being designed and built. Where fire suppression systems are deemed necessary to meet Building Regulations, for life safety, they must be installed.

Question 1

We would welcome views and evidence around the design opportunities, or limitations, that sprinklers can provide specifically in school building design for compliance with Building Regulations.

Compartment sizes

31. Compartmentation is used to sub-divide buildings so as to restrict fire size and minimize fire spread. As stated by MHCLG in the AD B call for evidence⁸, currently there are no recognised engineering methods for establishing the appropriate compartment size for a particular building type. However, BB100 recommends much smaller sizes than AD B, (800 square metres rather than 2000 square metres), at the time, taking a very cautious view.

Question 2

We would welcome evidence on the technical issues associated with compartmentation, specifically related to schools, including whether the maximum compartment size should be reviewed and amended.

Safe evacuation

32. Schools are generally viewed as low-risk because their users evacuate swiftly and simultaneously, through multiple exit routes and pupils and staff should be well drilled on what to do in the event of a fire. However, safe movement in any building is vital and during a fire or other emergency is essential for effective operation. BB100 prescribes the use of multi-storeyed school buildings with only one staircase for “adult” users and limited to 120 pupils and restricts the use of non-standard staircase design for escape routes.

Question 3

We welcome views and any evidence on the number and type of staircases, limits on occupation and safe escape approaches in multi- storeyed schools.

⁸ AD B review – Compartmentation, para 24

Emergency lighting

33. BB100 currently suggests that emergency lighting is not needed in school buildings with natural light that are only used during school hours. Such circumstances do not seem to reflect winter conditions, changing approaches to schools hours, or the opportunity for greater flexibility for school buildings to provide out of hours activity such as after school and community use.

Question 4

We would welcome views on the impact of community and out of hours use by school and non-school bodies, on fire safety design.

Combustible materials for external use

34. MHCLG's ban of combustible materials in the external walls of buildings over 18 metres includes student accommodation and dormitories in boarding schools. The DfE has also committed to ensuring that new school buildings, over 18 metres, built as part of our centrally delivered build programmes do not use combustible materials in the external walls, in line with the terms of the ban.

Question 5

We would welcome views on whether BB100 should recommend that all new school buildings over 18 metres, within the scope of the guidance, should not use combustible materials in the external walls, in line with the terms of MHCLG's ban.

Fire safety management

35. BB100 provides limited advice for fire safety management. It is a statutory duty to hand over fire safety information after construction as per Building Regulation 38⁹. In line with the Hackitt Review, it is important that designers consider how the building is going to be operated throughout its life. It is also important that those who own and/or operate the building throughout its life have sufficient guidance on the fire safety measures provided, and how to maintain them. They

⁹ Regulation 38 covers passing on the right fire safety details. It is a requirement under the Building Regulations for England to provide fire safety information to the 'responsible person' at the completion of a project.

also need to be aware that physical changes to the building could compromise these measures if sufficient care is not taken.

36. Increased complexity around technology, systems and guidance means that modern buildings can be more complex to manage than previously. Alterations through the life of buildings to meet operational requirements, (such as changes in pedagogy or pupils on roll) can lead to adaptations, which alter the safety arrangements appropriate to the school building.

37. The management, ownership and oversight of school buildings varies enormously as do the individual site operations, skills and experience of those managing buildings. The effectiveness of any safe design will depend on how well it is understood and utilised.

Question 6

We would welcome views on whether we should provide greater guidance, through BB100, on meeting fire safety management long-term, to support school building users to meet the requirements of the Fire Safety Order¹⁰?

Modern Methods of Construction (MMC)

38. Modern methods of construction, (MMC) can offer advantages such as consistent quality through off-site prefabrication and speed of construction, which help in producing cost-effective and sustainable buildings. However, while complying with the Building Regulations, these modern methods may incorporate newly developed techniques or materials, which may be combustible. Furthermore, they may not always well understood by all the stakeholders involved in the design and construction of buildings within the scope of BB100.

39. Off-site construction may also be used to produce three-dimensional units, such as a classroom or part of a classroom, which are delivered to site for final assembly. This has the benefit of improved construction quality in a factory setting. In these circumstances, certification and checking will be different to traditional construction approaches.

¹⁰ Regulatory Reform (Fire Safety) Order 2005

40. In the call for evidence on AD B, MHCLG have noted that their review will need to consider if the current provisions in AD B address the risks associated with current design features, construction methods, and materials.

Question 7

We would welcome views on whether there are any school specific issues in relation to MMC. We appreciate that there are elements of both life safety and property protection in relation to MMC and would welcome views on both.

Property protection measures

41. Building Regulations are intended to ensure that building works achieve a reasonable life safety standard. The protection of property, including the building itself, often requires additional measures to be designed in or provided. The legal requirement is for building designers to comply with Building Regulations for life safety.
42. MHCLG, in their call for evidence on AD B, note the important consideration of whether property protection of buildings should be taken into account by the Building Regulations. BB100 already includes advice on property protection in various parts of the guidance. This ranges from the installation of fire suppression systems, to construction details such as provision of compartment floors, improving security and reducing the risk of arson.
43. School specific property protection measures that we are proposing to cover in a revised BB100 include the use of fire suppression systems (where they are not specifically required to meet Building Regulations), compartment floors, fire safety management, special schools, high-density schools and residential schools. Whilst we are focusing on property protection measures in this section, we appreciate that some property protection measures can also be life safety measures. Therefore, we would welcome any additional comments on life safety alongside your views on property protection for the following measures.

Question 8

What school specific property protection measures should BB100 cover in addition to the topics covered below in questions 9 to 13?

Fire suppression systems for property protection

44. Fire suppression systems, where not already required to achieve life safety under Building Regulations, can be included in a building design for property protection. Sprinkler systems and other types of fire suppression systems can provide significant benefits in reducing risk from fire. BB100 already includes provisions for their use, where the risk has been considered to justify the additional property protection.
45. The current BB100 guidance includes tools, which support designers to undertake a risk assessment to identify whether or not fire suppression systems should be included for property protection purposes. As noted in para 19, the tools are not part of this call for evidence but will be subject to review with technical experts and included in the full consultation later in this process.

Question 9

We would welcome views on which fire suppression systems, (including sprinklers, misting systems etc.), are most effective in a school environment and any supporting evidence.

Compartment floors

46. BB100 recommends that in order to limit the extent of property damage in a fire all floors in a school should be compartment floors¹¹, which are fire-resisting floors normally used to separate one fire compartment from another. In school buildings, BB100 recommends their use to prevent a fire spreading from one storey to another.

Question 10

We would welcome evidence relating to the effectiveness of compartment floors in schools.

¹¹ A fire compartment is a building, or part of a building, comprising one or more rooms, spaces or storeys constructed to prevent the spread of fire to or from another part of the same building, or to an adjoining building. A compartment wall or floor is a fire-resisting wall or floor used in the separation of one floor compartment from another.

Special schools

47. Whilst all schools must comply with Building Regulations to meet life safety requirements, taking account of building users' needs, BB100 does not currently include specific provision for property protection measures for special schools. We are aware that specialist equipment and facilities are required in some types of special schools and as a result, some special schools may be more vulnerable to the effects of a significant fire than mainstream schools. For example, it could be very difficult to find suitable alternative or temporary accommodation for non-ambulant pupils displaced by a fire.

Question 11

What measures, if any, should BB100 provide guidance for around property protection for special schools? Do these measures differ for types of special school or particular pupil needs?

Schools on constrained sites

48. BB100 does not currently cover buildings with a top floor higher than 18 metres or include specific provision for property protection measures for schools with constrained sites (i.e. where there is limited external space, or schools including multi-storied and deep plan¹² schools in constrained sites), which are more likely in city centre locations.

49. BB100 currently covers basements up to 10 metres below ground level. Whilst basements are not common in modern schools, we are aware that as more schools are built in high-density areas the use of such areas for sports halls may become more common. AD B currently requires basements to have a means of ventilation in the event of fire. MHCLG in their review of AD B have asked for evidence in relation to basements.

Question 12

What issues, if any, should BB100 provide guidance for schools on constrained sites? Alternatively, should the guidance simply refer to the relevant section of AD B on buildings over 18 metres and deep basements?

¹² A deep plan or school on a constrained site, is where site restrictions and constraints may require either a very stacked solution with increased vertical circulation or lower heights with less external wall area for daylight/ventilation. They may also include more facilities underground such as sports halls.

Residential schools

50. BB100 does not currently include guidance covering school buildings that include residential accommodation. Instead, it refers to the advice in AD B covering Purpose Group 2 (a), “Residential (Institutional)”. This details how these buildings can be designed to comply with Building Regulations.

Question 13

We would welcome views on whether guidance, in addition to what is covered by AD B, is required for residential schools and whether any specific measures are required for residential schools.

Wider issues

Access and facilities for the Fire and Rescue Services

51. MHCLG have welcomed evidence as part of the AD B call for evidence on external access for fire fighting vehicles and fire fighting facilities to ensure that provisions remain in line with modern firefighting tactics, which have largely evolved since AD B was last updated.

52. Currently, the provisions in BB100 with regards to fire fighting access and facilities for educational buildings are similar to the ones in AD B.

Question 14

We would welcome views on whether there are any school specific changes to the guidance we should consider, in addition to what you may be recommending to MHCLG in their review of AD B.

Fire engineering

53. BB100 is the approach referenced for schools in AD B. However, there are multiple routes to compliance with the fire safety requirements of Building Regulations. The most common alternative route for compliance to BB100 is ‘British Standard 9999: Code of practice for fire safety in the design, management and use of buildings’ (BS 9999). As BS 9999 was first published in 2008, it was not referenced in BB100 and we are aware this has caused some confusion around permissible routes in designing new school buildings.

54. MHCLG, in their call for evidence on AD B, has noted that there may be other issues relevant to fire safety, which are not addressed in AD B but may be covered in other guidance documents or standards, which may usefully be considered for inclusion in AD B.

Question 15

We are interested in views and evidence on the effectiveness of fire engineering approaches in school building design.

Overall guidance format

55. BB100 provides guidance on how to design school buildings to satisfy the functional requirements set out in Paragraphs B1 – B5 of Schedule 1 to the Building Regulations 2010. The Building Regulations require reasonable standards of health and safety for people in or around buildings. BB100 life safety guidance largely replicates advice from AD B.

56. The DfE is considering whether BB100 should continue to replicate advice set out in AD B that is not limited to school building types. Alternatively, a revised BB100 could simply provide advice on school specific elements for life safety, with the appropriate references to AD B for wider guidance, alongside additional advice on property protection measures. This would ensure that any changes to AD B are continuously reflected in the BB100 guidance.

57. BB100 includes other information such as fire statistics that are available on the Home Office website. We would welcome evidence on whether this duplication is helpful.

Question 16

We would welcome evidence or views on whether a revised guidance should continue to replicate advice provided elsewhere.



Department
for Education

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