DRAFT PARTIAL REGULATORY IMPACT ASSESSMENT

PROPOSED AMENDMENT OF APPROVED DOCUMENT B: *FIRE SAFETY* OF THE BUILDING REGULATIONS 2000

PURPOSE AND INTENDED EFFECT

Objective

1. The objective is to improve the overall level of fire safety in buildings in England and Wales where relevant building work is carried out by reducing the size and consequence of fires and thereby saving lives and preventing injuries.

2. This consultation is considering a proposed change to the Building Regulations 2000 (as amended) and a number of changes to Approved Document B (AD B), which provides practical guidance on implementing the functional requirements of the Regulations with respect to Part B: *Fire safety*.

3. The proposal will affect all those dealing with relevant building work (typically the erection, extension or material alteration of a building) in England and Wales. (Separate legislation applies in Scotland and Northern Ireland.) This may include architects, developers, builders, Building Control Bodies (BCBs), manufacturers, property owners/occupiers, insurers etc.

Structure of RIA

4. This RIA is intended to set out the impacts, including costs and benefits, of amending AD B and is presented under the following headings:

   - the **purpose and intended effect** that such amendments might have (pages 1 to 5);
   - the **options** that have been considered (pages 5 to 9);
   - the **benefits** (social, economic and environmental) that could result (pages 9 to 17);
   - the **costs** (social, economic and environmental) that may be incurred, in particular the compliance costs for builders, building owners, developers etc, as well as other costs that may accrue (pages 17 to 25);
   - issues of **equity and fairness** which includes consideration of disproportionate impacts (pages 25 to 26);
   - **enforcement and sanctions** (pages 26 to 27);
   - arrangements for **monitoring and review** (page 27); and;
   - details of relevant **consultation** (pages 27 to 28).

5. A **summary and recommendations** is given on pages 28 to 30.

6. Further information is set out in Annexes A to C on pages 31-38.

Background

Building Regulations and Part B

7. The Building Regulations 2000 (as amended) apply to most building work in England and Wales, typically the erection, extension or material alteration of a building. (Separate legislation applies in Scotland and Northern Ireland.) The Building Regulations do not, therefore, affect the majority of existing buildings. Building Regulations may be made for a number of purposes but Regulation 8 currently limits the locus of many of the Parts, including Part B, to ensuring reasonable standards of health and safety of persons in and around buildings.

8. The five existing requirements of Part B are written in a functional manner requiring the building work to achieve a performance that is adequate, reasonable or appropriate. These are broadly:

   B1. To provide appropriate means of warning and escape

   B2. To adequately resist internal fire spread (linings)

   B3. To adequately resist internal fire spread (structure)

   B4. To adequately resist external fire spread

   B5. To provide reasonable access and facilities for the fire and rescue service.

9. It is for the relevant BCB, and ultimately the Courts, to decide whether the work meets these requirements on a case by case basis. The guidance given in AD B has been approved by the First Secretary of State as being one method that, if followed, will tend to show compliance with the statutory requirements. However, other methods may be used if the BCB is satisfied that in that case the functional requirements have been met.

10. AD B was last subject to significant technical review during the period 1997 to 1999 and came into force on 1 July 2000. This edition was subsequently amended in 2002 to give visible recognition to the new European harmonised product standards and the supporting test standards produced in support of the Construction Products Directive. These amendments came into force on 1 March 2003. A consolidated version is available at: www.odpm.gov.uk/approved-documents

11. However, this did not amend any of the existing technical guidance in the 2000 edition of AD B. A major review of the wider technical elements of the fire safety aspects of the Building Regulations and AD B was announced in the Government's White Paper "*Our Fire and Rescue Service*". The White Paper sets out the Government's desire to reduce the number of fires that currently occur by moving much more towards a fire prevention strategy. The Building Regulations are seen as one of the 'main strands' for delivery of this strategy, alongside Community Fire Safety and the Reform of Fire Law.

12. This review draws upon the findings of recent research and experience and takes account of a number of proposed legislative and procedural changes.

13. At the time of updating AD B to incorporate the new European fire test methods and classifications it was suggested that the production of smoke and burning droplets from construction products used to form walls and ceilings be controlled within the AD. Provisions in AD B for greater control of smoke production and burning droplets from these construction products were assessed using a cost-benefit analysis, but the results showed that they could not be justified. The costs to industry in terms of moving to alternative products and re-engineering existing products, as well as the burden of additional testing and certification, amounted to many millions of pounds, whereas the benefits in terms of reduction in risk of death and injury were minimal[1]. As a result the amendment is not pursued further in AD B or this RIA.

Developments in fire safety arena

14. Since the 2000 edition was published there have been a number of developments which need to be taken into account when reviewing AD B. These include:

- changes in construction methods and trends (e.g. a trend towards larger single storey warehouses);
- actual incidences of fire;
- relevant research findings;
- new or amended standards (e.g. a new standard for residential sprinklers, BS9251); and;
- changes to other policies and legislation which have an effect on fire safety in buildings (e.g. DfES has recently published for consultation its own, more detailed guidance on fire safety in schools).

15. In particular, the Office of the Deputy Prime Minister (ODPM) commissioned a number of pieces of research to look at various aspects of fire safety such as the effectiveness of sprinklers in residential premises and the ventilation of common access corridors. Also, following the World Trade Centre (WTC) incident of September 11 2001, ODPM commissioned a number of pieces of research concerned with fire safety in tall buildings, as directed by the Building Disaster Assessment Group (BDAG). The results of all this research[2] have been considered when preparing this revision of AD B.

16. All of the above developments are discussed further in Annex A.

Stakeholder engagement

17. ODPM commissioned a "Backward Look[3]" to evaluate the implementation of the 2000 edition of AD B (see paragraph 10). It identified 55 changes in the AD (from a total of over 600) as being significant. Around 80 stakeholders from

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1 *"The production of smoke and burning droplets from products used to form ceiling linings"*. Report to ODPM, September 2004, BRE Output 213073.

2 All relevant research reports can be found at: *link to be added*

3 Reference to be added (will be published at same time as AD B consultation)

various types of organisation[4] were interviewed about these changes to help assess their impact in terms of economy, safety and workload. One of the key results was that stakeholders felt it would be helpful if significant changes were highlighted and that greater explanation of the changes should be provided to show how old and new guidance differ. In particular, BCBs requested help in explaining to clients why specific changes were required. Another important result was that understanding the implications of a change has a cost even if the change is a simple alteration.

18. To complement the Backward Look, ODPM also commissioned a "Forward Look[5]" to determine what issues a new AD B should address. In all over 200 people including architects, building control surveyors, fire service officers, fire consultants, local authorities and manufacturers contributed through a series of regional workshops and an electronic web-based questionnaire. Although fire safety is a broad subject, three strong common themes did emerge:

    (a) **fire safety management** and particularly the importance of ensuring that information about the fire safety design of the building is passed on to the person responsible for its management;

    (b) the important role of **residential sprinklers**; and;

    (c) the need for improved guidance with respect to **means of escape for disabled people**.

19. The findings of both of these evaluation exercises have been taken into account in this review of AD B.

20. One further recommendation of the Forward Look, was to separate the current AD B into two: one to deal with dwellings, and another to deal with buildings other than dwellings. This reflects the fact that the audiences for the two documents are very different and, as AD B is one of the most extensive and technically complex ADs, it was considered that this would make the guidance easier to understand, particularly for many (typically smaller) construction companies who specialise in domestic work. A similar approach has been adopted with the current edition of AD L *Consumption of fuel and power*. For the purposes of this consultation AD B has therefore been split into two; this will be reviewed in the light of consultees' responses.

Risk assessment - Overview

21. From 1983 to 1999 the total number of accidental building fires (ie not arson) in England and Wales rose steadily by about 1% per year before beginning to level out in recent years. During the period 1999-2002[6] there was an average of around 67,500 building fires each year of which about 69% were in dwellings.

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4 Those interviewed were clients, contractors, designers, manufacturers, Building Control Bodies, a Fire Authority, trade associations and professional organisations.

5 tba

6 2002 is the most recent year for which figures are available. Although there are figures for 2003, they are provisional and will be subject to revision.

22. Over the last 20 years there has been a reasonably steady fall in the number of fatalities from fires but again this trend has begun to level out in recent years. In the 1999-2002 period, the number of fatalities ranged 290 to 370 per year with an average of 335. Throughout this time the proportion of deaths that were in dwellings was about 95%.

23. Conversely, the number of non-fatal injuries in fires has risen substantially over the last 20 years. Much of this rise results from the considerable increase in non-fatal casualties in dwelling fires, and can probably be attributed to an increase in the number of "precautionary check-ups" arising from the referral of less seriously injured people to hospital[7]. During 1999-2002 the number of non-fatal injuries ranged from 10,200 to 11,600 per year with an average of around 11,000. As with fatalities the situation with non-fatal injuries is dominated by dwelling fires, about 90% of injuries are recorded in dwellings.

24. Indications are that the falling trends for the number of fires and fatalities are levelling out (in fact, preliminary figures for 2003 show a slight increase in the number of both deaths and injuries) and that, if no further measures are introduced, the numbers will not continue to fall.

25. More detailed risk assessment is given in Annex B where individual proposed changes to AD B are considered.

OPTIONS

26. The options considered are:

Option 1.	Do nothing
Option 2.	Encourage industry to draw up a voluntary code of practice and promote best practice
Option 3.	Implement changes to AD B as proposed

27. Option 1 is self-explanatory.

28. Option 2 would involve working within the context of existing Government dissemination programmes related to fire safety. It would involve running road shows, producing guidance material, holding seminars etc to encourage the industry to adopt the changes with regard to fire safety. The focus of this activity would be those changes considered under Option 3.

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[7] Non-fatal casualties consist of persons requiring medical treatment beyond first aid given at the scene of the fire and those sent to hospital or advised to see a doctor for a check-up or observation (whether or not people actually do). People sent to hospital or advised to see a doctor as a precaution, having no obvious injury, are recorded as "precautionary check-ups". Further details can be found in the Home Office publication *'Fire statistics: A user guide for research'* which is available at: http://www.odpm.gov.uk/stellent/groups/odpm_control/documents/contentservertemplate/odpm_index.hcst?n=4837&l=2

29. Option 3 consists of a series of proposed changes to AD B and these fall into four main categories:

    (i) deregulatory measures that clarify an area that experience has shown is subject to misunderstanding, or to lessen a particular provision in the existing guidance that is now considered to be onerous;

    (ii) responses to changes in construction practice or to fire experiences that indicate that present guidance may not give sufficient protection;

    (iii) updating to take account of changes to British Standards and other technical references; and;

    (iv) updating to take account of changes to associated legislation.

30. Accordingly, a number of significant changes have been proposed for each building purpose group[8], and these are summarised in Tables 1a and 1b. All, except the proposed introduction of a legislative requirement on the provision of fire safety information for non-domestic buildings, take the form of amendments to the guidance in AD B. The rationale for proposing these measures and the risks they are designed to address are discussed in Annex B.

31. It should be noted that, although all these proposals are being considered as a package of measures for the purposes of this RIA, they are not mutually exclusive, ie one or more of them could be disregarded or amended in the light of the consultation exercise.

32. Furthermore, although the majority of proposals are amendments which ODPM intends to make (subject to the outcome of the consultation), others are included on the basis that the ODPM is "minded" to make the change. For these proposals, which are clearly identified, the ODPM is very keen to receive detailed information on the potential impacts, particularly costs and benefits, as part of the consultation process.

33. As well as the proposed amendments set out in Tables 1a and 1b, there are a number of proposed amendments which will provide alternatives to existing provisions. For example, the potential to provide sprinkler protection instead of an alternative escape route where currently provided in both houses (typically 4 storeys and above) and multi-storey apartments. These new options will provide greater design freedoms and promote innovation and may, in some cases, produce a cost saving compared to current alternatives. However, as their use will be optional, the potential impacts have not been formally appraised in the Costs and Benefit sections of this RIA.

34. Generally, it is anticipated that all the proposals that are implemented as a result of the consultation would take effect at the same time when AD B comes into force, although it may be possible to delay implementation of some measures on the basis of negotiations with affected industries.

[8] **Purpose group** is a classification of a building according to the purpose to which it is intended to be put. These are given in Appendix D of the draft Approved Document B.

35. When considering the potential costs and benefits of these proposals it should be noted that the changes will only apply to that building work (see paragraph 7) which is given consent after these amendments come into force. The changes will predominantly impact upon new buildings, currently estimated to be about 1% of current building stock per annum. The rate of construction of new dwellings and apartments is obtained from DTI and NHBC housing statistics and for non-domestic buildings from analysis of planning applications.

36. It should be noted that there will still be some cost of dissemination as described in Option 2. However, this will take the form of a one-off programme of events at the time that the revised AD B is published to inform people of the changes, rather than a rolling programme designed to encourage improvements.

Table 1a Summary of proposed amendments to Part B (Residential – Dwellings) broken down by purpose group

Purpose Group	Building type	Proposed amendment
1(a)	Apartments *(formerly known as Flats and Maisonettes)*	Remove the provision for any form of self closing device within an apartment, other than doors opening onto common escape routes.
		Revise guidance on the provision of ventilation systems suitable for the protection of stairways.
		ODPM is minded to introduce a provision for sprinkler protection in new high-rise (30m+) apartment buildings subject to further assessment in the light of response to the consultation and more accurate cost data.
1(b) and 1(c)	Dwellinghouses	Remove the provision for any form of self closing device within a dwellinghouse, other than doors to garages.
		Clarify that a suitable system of smoke alarms may be required where an extension is proposed.
		Remove separate loft conversion guidance so that all "loft conversions" in 2 storey houses are treated in the same way as a new three storey house.
All	All Dwellings	Include a provision for an additional smoke alarm in the main bedroom.
		Enhance provision that cavity closure around windows and doors meets a reasonable standard of fire resistance. Introduce provision for cavity barriers in floor voids.

Table 1b Summary of proposed amendments to Part B (Buildings other than dwellings) broken down by purpose group

Purpose Group	Building type	Proposed amendment
2(a)	Residential, institutional (eg hospital, home, school, establishment used for living accommodation or care of elderly or disabled people etc)	ODPM is minded to introduce a provision for sprinkler protection in residential care homes subject to further assessment in the light of response to the consultation and more accurate cost data.
3, 4 & 5	Office (eg buildings used for administration, handling money, communication etc) Shop and Commercial (eg buildings used for retail trade or business etc) Assembly and Recreation (eg studios, museums, galleries, stations, clubs, cinemas etc)	Include a provision for a series of measures regarding inclusive design on: (i) Warning for people with impaired hearing; (ii) Management procedures to assist escape of all people, including those with disabilities; (iii) Level thresholds for final exits; (iv) Refuges for disabled people awaiting assistance; Emergency voice communication (EVC) to facilitate evacuation of people waiting in refuges.
5	Assembly and Recreation	Add a provision for fire fighting shafts[9] for buildings over 7.5m tall *[Note removal of this requirement for buildings falling into Purpose Group 7(a)].*
6 & 7(a)	Industrial (eg factories and other premises used for manufacturing etc) Storage (eg place for storage or deposit of goods)	Repeal those parts of Local Acts requiring a maximum compartment size for unsprinklered storage and replace with a single national provision of 440,000m^3.
7(a)	Storage	ODPM is minded to introduce a provision for ½ hr fire protection to all corridors in warehouses.
		Remove provision for fire fighting shafts in buildings over 7.5m tall.

[9] A protected enclosure (ie enclosed in fire resisting construction) containing a fire fighting stair, fire fighting lobbies, fire resistant doors, a smoke shaft and, where provided, a fire fighting lift, together with its machine room.

Purpose Group	Building type	Proposed amendment
2 to 7	All buildings other than dwellings	Require the provision of information on fire safety design and procedures for operating and maintaining a building's fire protective measures.
		Provide dry rising mains in escape stairs in all unsprinklered buildings between 18 and 30m tall.
		Discount an escape stair in tall (30m+) buildings with phased evacuation.
		Design compartment walls to take account of the deflections that occur in the structural frame of the building during a fire.
		Enhance provision that cavity closure around windows and doors meets a reasonable standard of fire resistance. Introduce provision for cavity barriers in floor voids.

BENEFITS

Option 1

37. Option 1 would produce no additional benefits. In fact, it would not keep pace with changes in risk and developments in technology. It would also leave Part B out of step with related regulations, standards and guidance which would cause confusion within the industry. Indeed, the industry suggested a number of areas that AD B needed to consider in the "Forward Look" (see paragraph 18) and these would not be addressed. Further, the potential benefits of Options 2 and 3 would be foregone because the lives saved and injuries prevented under these options would not be realised.

Option 2

38. Option 2 would produce benefits, but these are likely to be small because only a small proportion of the industry – probably that in the public sector – is likely to adopt the changes. This is supported by experience gained from, for example, DTI's Construction Best Practice (now Constructing Excellence) which suggests that only a small proportion (about 20%) of the target market has used the Programme, although this figure is much higher (nearly half) in respect of public sector clients. Given that life safety should have equal priority across all building types and sectors an option that is not implemented uniformly may give rise to problems.

39. A further difficulty is that AD B is an extensive document addressing a disparate range of building issues and hence is of interest to a very broad audience. Given the multitude of proposed changes it is difficult to target guidance on best practice easily and cost-effectively.

40. The benefits produced would be predominantly social, in terms of a reduction in the incidence of fires as well as a reduction in risk of fatality and injury attributable to fire. There would also be some economic and environmental benefits. Further details on the nature of all three impacts are discussed under Option 3.

Option 3

41. Option 3 would produce the greatest benefits which would be mostly social but would also have some economic and environmental benefits. It has the advantage over Option 2 in that it provides clear and consistent guidance to all parties. In new apartments and dwellinghouses the provision for additional smoke detectors would lead to reductions in deaths and injuries, and in tall apartment buildings the provision of sprinklers would also lead to risk reductions. Similarly, sprinklers in new residential care homes would have a positive benefit. In non-domestic buildings the proposed provisions would assist in occupants escaping from fires and help the fire and rescue service to affect search and rescue and, consequently, limit fire spread.

Social benefits

42. The basic approach for assessing social benefits is to determine the annual risks of death and injury per accommodation unit, estimate how the proposed revision would reduce these risks and then calculate the number of lives saved and injuries prevented over 10 years in a set of buildings constructed during that time. A 10-year period has been considered simply to allow a measurable number of lives saved to be realised, as well as providing a common basis for comparing each of the proposals. In order to calculate a financial benefit deaths and injuries have been converted into a cash sum using standard valuation figures agreed with ODPM economists. Specifically, the value of life used was £1.24m and value of injury was £58k (this is a weighted average of serious and minor injuries).

43. There can be other social benefits associated with reducing the severity and incidence of fires, such as the distress and disruption caused by fire, the loss of a person's home and belongings etc. These are far harder to quantify and can be considerable but are arguably outwith the locus of Part B (see paragraph 7) and so can only be of secondary consideration.

Economic benefits

44. The economic benefits of Option 3 could potentially be quite extensive but are beyond the current locus of Part B (and, wider, beyond the current locus of much of the Building Regulations, see paragraph 7). Where the proposed amendments give alternative approaches to meeting the requirements of Part B (see paragraph 33) this could produce cost savings in terms of reduced construction costs. They also provide greater design freedom and promote innovation.

45. Finally, there may be substantial savings in terms of avoiding the economic loss associated with buildings and their contents damaged or destroyed by fire. A particular example of this is cavity barriers which can prevent extensive fire spread and hence damage. In the case of very large fires the negative impact on the local community/business could be significant. However, these impacts are beyond the current locus of Building Regulations and are mostly addressed through insurance.

Environmental benefits

46. The environmental benefits of Option 3 would arise from limiting the size and hence the consequence of fires. Combustion products, including smoke and toxic substances, from fires can not only lead to localised deterioration in air quality (which can cause respiratory symptoms, including asthma) but also larger, particularly industrial fires, may have a widespread effect both on people and on the natural environment. Water usage as a result of action to extinguish fires depletes resources and the run-off can lead to pollution of water courses.

47. It is estimated that some 40 fires per year result in a Category 1 or 2 pollution incident[10]. Fewer, smaller fires would reduce water usage and help to reduce air and water borne pollution. Although these impacts cannot be considered directly within the locus of Part B (see paragraph 5) they are a secondary consideration. However, such benefits are extremely difficult to quantify, although they are likely to be small in comparison to the social benefits.

Benefits by Proposal

Remove provision for self-closing devices in apartments and dwellinghouses (except garage doors)

48. Currently AD B provides that most doors within apartments, dwellinghouses with 3 or more storeys and 2 storey dwelling houses where the loft is being converted, should be fitted with self-closing devices (see Annex B, paragraph B2). The material and labour cost for installing a self-closing device on doors is about £25 so the total cost per apartment/dwellinghouse is likely to be about £150. Therefore, based on construction rates[11], it is estimated that the saving arising from the removal of this provision is about £14.2m per year (see paragraph 69). The resources saved would be used to better target life safety measures through other proposals.

Amend the provisions for smoke ventilation of common access areas in apartment buildings

49. The number of apartments constructed each year has been rising over the last 2 to 3 years in response to the need to increase housing densities. Apartments are now the most popular form of new housing and make up over a third of all new dwellings[11]. Based on these figures and the data presented in paragraph

[10] Source: Environment Agency Pollution Incident Statistics 2001-2003

[11] Source: NHBC (National House Building Council) New House-Building Statistics. Prior to this time detached houses were the most common form of construction making up about 40-45% of all

B5 it is estimated that installing improved ventilation systems in apartment blocks could reduce the risk of death or injury by about a half, thereby saving at least 2 lives and preventing some 130 injuries over 10 years. There may also be a small economic benefit in terms of a net cost saving (see paragraph 70).

Provide for an additional smoke alarm in apartment buildings and dwellinghouses

50. The risk of death in dwellings with operational smoke alarms is discussed in paragraph B6. The provision of an additional smoke alarm in the lounge and main bedroom were determined to have the potential for the greatest reduction in casualties. However, there is a greater potential for false alarms from a smoke alarm in the lounge and hence increased possibility that the system would be disabled by the householder. An alarm in the bedroom would be both a detector and sounder and so more likely to alert those asleep to a problem both in the room or elsewhere in the house so this option has been taken forward. Based on the rate of construction of new dwellings, an additional smoke alarm in the main bedroom is estimated to save 7 lives and prevent 215 injuries over a 10-year period.

Provide for a suitable system of smoke alarms where an extension is proposed

51. This proposal is a clarification of existing guidance. The current edition of AD B is widely interpreted to "require" this already so the proposed amendment would produce no significant additional benefit in terms of reductions in casualties. However, the clarification would ensure that there is a consistency of approach across England and Wales and would reduce risks of deaths and injury in those areas where the guidance was not previously interpreted in this way.

Remove the separate guidance on loft conversions in dwellinghouses

52. This proposal would remove the separate guidance in AD B in relation to loft conversions in existing 2 storey dwellinghouses so these would be treated in the same way as new 3 storey dwellinghouses, thereby removing confusion and ensuring consistency of approach. There may be potential for small cost savings depending on the size and layout of individual properties (see paragraph 74) but it is expected to produce no significant economic benefits.

Provide for sprinkler protection in high rise apartments and residential care homes

53. The proposal to introduce a provision for sprinkler protection in high rise apartments (assumed to be 11 storeys or more in height) and residential care homes have already been subject to a separate preliminary analysis[12]. This suggested that providing sprinklers in high rise apartments could save 4 lives and prevent 65 injuries over a 10-year period and in residential care homes could save 1 life and prevent 16 injuries. ODPM is minded to take this proposal forward but would particularly welcome comments on the impacts it may have.

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dwellings and apartments only about 15%. Since 2000 the proportion of detached houses has fallen and now makes up about 30% of new dwellings.

12 "The effectiveness of residential sprinklers" - BRE..... NB This report calculated proposed costs and benefits over a 50 year period.

Provide for cavity barriers in dwellings and non-dwellings

54. This proposal is to introduce a requirement for cavity barriers in floor voids and enhance the requirement for cavity closure to ensure adequate fire protection. With respect to floor voids the buildings affected are likely to be the in the non-domestic sector, but not exclusively. For dwellings the proposal would have most impact on cavity closure around windows and doors (see also paragraph 79 and B23-24). As many buildings already adopt these measures it is considered that this would produce no significant additional benefit in terms of reductions in casualties, however, it would ensure consistency of approach and would reduce the risk of casualties where not previously adopted.

Introduce provisions for measures on inclusive design

55. These proposals bring AD B into line with the Approved Document that supports Part M to the Building Regulations[13] as well as other supporting British Standards and are also required to help businesses meet their duties under Part III of the Disability Discrimination Act 1995 (DDA). It is therefore considered to impose no significant additional benefit.

Amend the provisions for fire fighting shafts

56. This proposal would remove the provision for fire fighting shafts in buildings over 7.5m high but less than 18m from Purpose Group 7(a) - storage buildings but introduce it to Purpose Group 5 - assembly and recreation buildings. On balance this would save lives because the casualty risk in Purpose Group 5 is considered to be greater and more buildings of this type are constructed each year (see paragraph B14). This proposal is intended to target resources on those buildings with a greater risk of fire casualties. Using these figures it is suggested that overall this proposal would save 1 life and prevent 15 injuries over a period of 10 years.

Introduce a maximum unsprinklered compartment sizes for warehouses (Local Acts)

57. The proposal to repeal those parts of Local Acts in respect of the maximum unsprinklered compartment size for storage and industrial buildings and introduce a single national limit. This would ensure consistency of approach across the UK and remove local distortions in the location of such buildings. (For example, one area with a more demanding compartment size would not be disadvantaged economically should a developer choose to build in an adjacent area with a more relaxed limit.) Furthermore, whilst statistics indicate that this type of building is not currently a major risk, as warehouses are becoming increasingly large, the risk of death and/or injury is increasing. The proposal can, therefore, also be seen as a proactive measure to reduce future risks of death and/or injury of occupants and firefighters alike.

[13] Part M - *Access to and use of buildings*. Can be found on ODPM website at: http://www.odpm.gov.uk/stellent/groups/odpm_control/documents/contentservertemplate/odpm_index.hcst?n=4217&l=3

58. However, experience has shown that warehouses - in particular large warehouses (ie those with a floor area of 30,000 to 40,000m^2) - are often sprinklered anyway for insurance purposes. Therefore, this proposal would produce no additional social or economic benefit except where they would not otherwise have installed sprinklers although it would ensure clarity and consistency of approach across England and Wales.

Provide for fire protection of corridors in warehouses

59. The main concern here is the rapid growth of a new type of building ("self-storage warehouses") where there are risks to both occupants and firefighters as discussed in paragraphs B16 to B18. It is difficult to quantify the benefits of this proposal as there are no historic figures for this type of building, therefore this can be regarded as a proactive measure to address these risks. ODPM would particularly welcome any comments in relation to this proposal.

Provide for dry rising mains in tall buildings

60. As noted in paragraph B20, the work on fire safety in tall buildings[14] in the light of the World Trade Centre (WTC) incident showed that firefighters may not be able to penetrate safely more than 34m into a compartment to rescue a casualty. This conflicts with current guidance in AD B which suggests that firefighting shafts should be arranged such that this distance is no more than 60m. The proposal to amend the guidance to reduce the distance to 45m by installing additional dry rising mains in unsprinklered buildings is intended to go someway towards addressing this potential conflict. Other measures will include consideration of changes to firefighters clothing, equipment and procedures. Whilst statistics indicate that these issues are not a problem in the UK, there is evidence that they may increasingly become so as the number of high rise buildings, and the height to which they are built, increases. The proposal is, therefore, a proactive measure to ensure that in the future fire fighting and search and rescue operations can be more effective.

Discounting stairs in tall buildings with phased evacuation procedures

61. The proposal to discount a stair in tall buildings with phased evacuation also stems from research[15] undertaken in the light of the WTC incident. As noted in paragraph B21 the relationship between stair width and evacuation requirements of buildings has shown that there is a potential conflict between persons escaping down a stair and firefighters undertaking firefighting and search and rescue operations over several levels within the same stair enclosure. Whilst statistics indicate that these issues are not problem in the UK, there is evidence that they may increasingly become so as the number of high rise buildings, and the height to which they are built, increases. The proposal is, therefore, a proactive measure to ensure that in the future means of escape for occupants and fire fighting and search and rescue operations can be more effective.

14 reference tba
15 "

Design compartment walls to take account of deflections during a fire

62. The proposed amendment incorporates into AD B existing guidance (BS5950 Part 8 and SCI Publication 288) already in the public domain. As many buildings already adopt these measures it is considered that this would produce no significant additional benefit in terms of reductions in casualties, however, it would ensure consistency of approach and would reduce the risk of casualties where not previously adopted.

Require the provision of information

63. It is proposed that for non-domestic buildings builders/developers should be required to pass on information on fire safety design and procedures for operating and maintaining a building's fire protective measures to the owner/ occupiers. This would help to reduce risks of casualties that might occur as a result of failure to adopt appropriate management procedures for the design of the building or through failure to maintain protective measures (eg damaging a cavity barrier when running computer cabling). This is seen as particularly important given the greater use of, and increasing complexity of, fire engineering in building design.

64. There would also be potential cost savings as drawing this information together at the construction stage would reduce future costs of sourcing and assessing this information at a later date. (For example, if a different contractor/client is involved between base-build and fit-out, when a building is refurbished or when a new owner or tenant takes over). It would particularly assist owner/occupiers in the production of their risk assessment under the terms of the Regulatory Reform (Fire Safety) Order (RR(FS)O), expected to come into force at about the time that the revised AD B is published.

Summary of benefits

65. The benefits arising from Option 3 are summarised in Tables 2a and 2b:

Table 2a. Benefits arising from Option 3 (Residential – Dwelling)

Proposed amendment to Part B (Residential - Dwelling)	**Benefit**
Remove the provision for self closing devices	Economic benefit (cost saving) of £14.2m per year. Better targeting of resources.
Revise guidance on the provision of ventilation systems suitable for the protection of common stairways	Social benefit. Save 2 lives and prevent 130 injuries over 10 years. (£1m pa) Possible small economic benefit (cost saving).
Provide an additional smoke alarm in the main bedroom	Social benefit. Save 7 lives and prevent 215 injuries over 10 years. (£2.1m pa)

Proposed amendment to Part B (Residential - Dwelling)	Benefit
Clarify that a suitable system of smoke alarms may be needed where an extension is proposed	No significant additional benefit but should ensure consistency of approach
Remove loft conversion guidance so that loft conversions are treated as for a new three storey house.	No significant additional benefit. Removes confusion and ensures consistency of approach
ODPM is minded to introduce a provision for sprinkler protection in new high-rise apartment buildings	Social benefit. Save 1 life and prevent 7 injuries over 10 years. (£0.1m pa)
Enhance requirement that cavity closure around windows and doors meets a reasonable standard of fire resistance	Social benefit in terms of reducing disruption and distress caused by fire. Environmental and economic benefits in terms of reducing fire spread and hence fire size and fire damage.
Total	**10 lives saved and 352 injuries prevented over a 10 years (£3.2m pa) and reductions in disruption and distress caused by fire** **Cost saving of £14.2m pa and better targeting of resources** **Clarification and consistency of application** **Environmental benefits**

Table 2b. Benefits arising from Option 3 (Buildings other than dwellings)

Proposed amendment to Part B (Buildings other than dwellings)	Benefit
ODPM is minded to introduce a provision for sprinkler protection in residential care homes	Social benefit. Save 1 life and prevent 16 injuries over 10 years. (£0.2m pa)
Introduce provision for cavity barriers in floor voids	No significant additional benefit (already largely done by industry) but should ensure consistency of approach
Incorporate measures regarding inclusive design to bring Part B into line with other guidance	No significant additional benefit but should ensure consistency of approach
Provide fire fighting shafts for buildings over 7.5m tall in PG 5 and remove this requirement for buildings falling into PG 7(a)	Social benefit. This is intended to better target resources and would save 1 life and prevent 15 injuries over 10 years. (£0.2m)
Repeal parts of Local Acts requiring a maximum compartment size for unsprinklered storage and replace with a single national requirement of 440,000m^3	National limit should ensure consistency of approach across England and Wales. Proactive as storage buildings become increasingly large. No significant additional social or economic benefit as many buildings already sprinklered.

ODPM is minded to introduce a provision for ½- hour fire protection to all corridors in warehouses	Social benefit. Proactive measure to address risks posed by a new type of building
Provide dry rising mains in escape stairs for all unsprinklered buildings between 18m and 30m high	Social benefit. Proactive measure to improve future firefighting and search and rescue operations
Discount an escape stair in tall (>30m) buildings with phased evacuation	Social benefit. Proactive measure to improve means of escape for occupants and future firefighting/search and rescue operations
Design compartment walls to take account of the deflections that occur during a fire bringing Part B into line with other guidance	No significant additional benefit but should ensure consistency of approach
Requirement to provide information on fire safety design and procedures for operating and maintaining a building's fire protection measures	Primarily economic benefit. Reduce future costs in sourcing and assessing this information/assist with preparation of risk assessments under RR(FS)O. Would have some social benefit by indirectly reducing risk of death/injury by ensuring all stages of design are joined up and ongoing maintenance/management is appropriate
Total	**2 lives saved and 15 injuries prevented over a 10 year period (£0.4m pa) and proactive measures to improve future firefighting and search and rescue operations** **Economic benefits arising from future cost savings** **Providing clarification and consistency of application** **Environmental benefits**

COSTS

Option 1

66. Option 1 imposes no direct costs, although the benefits realised under Options 2 and 3 would be missed.

Option 2

67. Option 2 would impose some costs on Government to fund efforts to encourage industry to adopt best practice principles and produce guidance material to show how this could be achieved. Such costs are difficult to estimate but based on experience gained running comparable dissemination programmes this could amount to £0.5m per year. There would also be a cost on those parts of industry that choose to adopt best practice. As with the potential benefits (see paragraph 38), these costs are difficult to estimate since they depend on the

take-up rate but they could amount to about a tenth of Option 3 and it is likely that take-up would be highest in the public sector.

Option 3

68. The proposed changes to Part B (Option 3) are all summarised in Tables 1a and 1b. Overall it is considered that all costs are economic, ie there are no significant environmental or social costs associated with these proposals. The costs for each of the proposed amendments, as well as general costs of implementation, are discussed below.

Remove provision for self-closing devices in apartments and dwellinghouses (except garage doors)

69. Based on construction rates[11] the annual national saving arising from the removal of this provision is about £14.2m. However, there may be an indirect economic impact on the manufacturers and installers of self-closing devices in terms of reduced turnover.

Amend the provisions for smoke ventilation of common access areas in apartment buildings

70. The key proposal here is to amend the guidance on the installation of smoke ventilation in the common access areas of apartment buildings to provide more effective protection for the occupants of apartment buildings. The costs of using this new approach would be similar to existing practice and, in many cases, could provide a cost saving as it would increase the amount of floor space available per apartment. However, as current practice already adopts many aspects of the proposed amendments, any additional benefits are unlikely to be significant.

Provide for an additional smoke alarm in apartment buildings and dwellinghouses

71. The cost to install an additional smoke alarm in the main bedroom is about £30-35. Based on the rate of construction of new dwellings this equates to an annual national cost of £4.8m.

Provide for a suitable system of smoke alarms where an extension is proposed

72. This should not lead to significant cost increases because (as noted in paragraph 51) the proposal is a clarification, and the current edition of Part B is widely interpreted to require this already. However, there may be a small cost in those locations which do not currently adopt this interpretation.

Remove the separate guidance on loft conversions in dwellinghouses

73. Currently all new-build 3 storey houses should have a protected stairway, ie all doors leading onto the stairway need to have ½-hour fire resistance and be fitted with self-closing devices. However, when converting an existing 2 storey house to a 3 storey house by means of a loft conversion, the current guidance

allows for existing doors onto the stair to be retained, provided they are fitted with self closing devices, the fire resistance of the floor/ceiling is improved to give ½-hour fire protection[16] and a suitable escape window/rooflight is installed. This proposal would mean that this alternative approach would be removed and a protected stair would need to be provided in all cases.

74. For a typical 3-bedroom semi-detached house this would cost approximately £1,250 (assuming 5 additional[17] fire resisting doors at £250 per door), which is comparable to the current provision (£1,000 to increase the fire resistance of a 40m^2 floor and £300 for a suitable window)[18]. There may even be a small net saving overall, although in some cases the floor area might still require upgrading (at least in part) or more doors might be required depending on the design. It is therefore assumed that this proposal will impose no significant additional cost.

Provide for sprinkler protection in high rise apartments and residential care homes

75. The cost to install sprinklers has been subject to a separate preliminary analysis[12]. For apartment buildings the cost is about £900 per apartment (amounting to an annual national compliance cost of £0.2m for those buildings 11 or more storeys in height), and the cost in a typical residential care home is about £3.5-5k (amounting to an annual national compliance cost of £0.8m). However, the figures obtained by ODPM from the industry vary considerably, but appear to be conservative. Also the overall cost-effectiveness of sprinklers is very dependent on the installation cost. Therefore, ODPM would welcome any data on the cost to install sprinklers in all types of residential premises.

Provision of cavity barriers (Dwellings)

76. The proposal relating to cavity barriers in dwellings would have most impact on cavity closures around windows and doors. The vast majority of new houses are covered by the NHBC warranty or the Zurich building guarantee. Inspection[22] of their supporting technical guidance highlights a concern that installation of PVC-u and aluminium frames in timber frame construction does not provide adequate cavity closure in the event of a fire and so additional fire-resistant materials would need to be installed. There would be no impact on traditional masonry construction regardless of the window and door frame type.

77. It is understood though that house builders are adopting the TSO Robust Details guidance[19] that supports Part L or equivalent and, as such, meet all the proposed requirements for cavity closure. Therefore, there would be no cost impact for new-build dwellings. There would however be an impact for PVC-u and aluminium window replacements in the existing stock where the dwelling is of timber framed construction.

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16 eg by fixing 12.5mm plasterboard to the ceiling – see "Increasing the fire resistance of existing timber floors". BRE Digest 208.

17 A fire resisting door would need to be fitted to the loft conversion itself in either scenario.

18 The need to fit self-closing devices (or not, as proposed) applies equally to new and existing doors.

19 Ref

78. Data from the English House Condition Survey (EHCS) suggests that just under 2% of dwellings in England and Wales have this form of construction. Data from FENSA[20] show that there are some 1.2 million replacements per year of which the vast majority are PVC-u and aluminium frames. Excluding like for like[21] replacements, it is therefore estimated that there are about 20,000 window/door replacements of this type in timber frame dwellings.

79. Assuming an average window size of 2.5m^2 gives an average window perimeter length of 6.3m, and, based on the total number of installations, this equates to a total cavity length of 136,000m per year which would require proper closure. Investigations on the cost of suitable materials amongst relevant suppliers suggest that this ranges from about £1 to £11 per linear metre so the total cost would be £130k to £1.4m (average £760k) per year. Given the relative ease of application of these materials it is assumed additional labour costs are minimal.

Cavity barriers (Buildings other than dwellings)

80. This proposal is to introduce a requirement for cavity barriers in floor voids and enhance the requirement for cavity closures to ensure adequate fire protection. Discussions[22] with industry indicated that cavity barriers are specified in new-build and refurbishment work, and that 20m spacing was often used in accordance with Loss Prevention Council (LPC) guidelines. Part E provisions for sound insulation between offices often meant that barriers were installed in floor voids to prevent sound transmission. Further, any proposed changes would be unlikely to have much impact because the material used for sound insulation purposes is often already based on typical ½-hour fire protection designs (it is covered in foil to facilitate handling). In addition, such materials were also used where air conditioning systems were present to help improve distribution of air throughout the building.

81. In conclusion it is suggested that introducing the requirement would have no significant cost impact in this case.

Introduce provisions for measures on inclusive design

82. These proposals bring AD B into line with the Approved Document that supports Part M to the Building Regulations[23] as well as other supporting British Standards and are also required to help businesses meet their duties under Part III of the Disability Discrimination Act 1995 (DDA). It is therefore considered to impose no significant additional cost.

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20 See http://www.fensa.org.uk/index.phtml. FENSA is the scheme set up to ensure that the replacement external fenestration in dwellings meets the thermal requirements of the Building Regulations and that it makes the building no worse in terms of the other requirements of the Building Regulations, including Part B.

21 Replacing old PVC-u frames with new PVC-u frames would not make the compliance with the Building Regulations worse than at present and so the requirements of Part B would not apply.

22 Colwell,S. & Hartless,R. "Impact assessment report for proposed changes to AD(B) on cavity barriers". BRE Report 213428, August 2004.

23 Part M - *Access to and use of buildings*. Can be found on ODPM website at: http://www.odpm.gov.uk/stellent/groups/odpm_control/documents/contentservertemplate/odpm_index.hcst?n=4217&l=3

Amend the provisions for fire fighting shafts

83. To construct a fire fighting shaft in a building over 7.5m tall (but less than 18m tall) would cost about £100k. Such a shaft would consist of a firefighting lobby, fire resistant doors, firefighting stairs and possibly a smoke shaft, but not necessarily a fire fighting lift. However, as the majority of such buildings would already have a stair, to upgrade this to a fire fighting shaft would cost around £24k per building. The proposal to replace the provision of fire fighting shafts in Purpose Group 7(a) buildings with those in Group 5 would produce some savings, but overall there would be a cost because of the greater number of buildings in Group 5 that are constructed (see paragraph 56). Based on the differences in construction rates it is estimated that the annual compliance cost would be £22m.

Provide for fire protection of corridors in warehouses

84. The proposal that corridors in warehouses (primarily "self-storage" warehouses) should have ½-hour fire protection could cost up to £180k per floor. For a typical 4-storey building this would amount to £720k which would represent a 25% increase on a total construction cost of about £3m. Based on the industry's figures for construction rates this would equate to annual compliance cost of about £21.6m. This would make the proposal very onerous. However, the figures obtained by ODPM from the industry appear to be rather high. Therefore, ODPM would welcome any data on the cost of this proposal.

Maximum unsprinklered compartment sizes for warehouses (Local Acts)

85. Analysis of planning applications suggest that about a quarter of warehouses and related industrial buildings are built in areas covered by Local Acts. Repealing the parts of Local Acts that have requirements for a maximum compartment size for unsprinklered storage space and replacing with a single, national limit at a higher threshold could potentially produce savings, as analysis of planning applications suggest fewer buildings overall would be captured. However, as most such warehouses appear to be sprinklered anyway for insurance purposes there are likely to be no significant savings.

Provide for dry rising mains in tall buildings

86. The proposed amendment would effectively require additional dry risers in the stairways of appropriate tall buildings to ensure that the penetration distance along a route for laying hose does not exceed 45m. The cost to install a dry riser consisting of a 120mm diameter pipe with all necessary fixtures and fittings is about £2k per storey. Inspection of planning applications for such buildings indicate that this would primarily affect buildings in Purpose Groups 3, 4 and 5 as these are generally the only buildings tall enough (ie between 18 and 30m high) to be affected by the proposal. Only the largest buildings (ie floor area 4,500m^2+) would be likely to require additional rising mains to meet the proposed requirement. Further analysis of planning applications suggest that about 5% of buildings in Purpose Groups 3, 4 and 5 would require an additional dry riser and this equates to about 300 buildings per year. However,

if they were fitted with sprinklers then an additional rising main would not be required. As a maximum therefore this would amount to an annual compliance cost of some £13m.

Discounting stairs in tall buildings with phased evacuation procedures

87. The proposal to discount a stair in tall (30m+) buildings with phased evacuation means that the stair in many buildings would need to be constructed wider. The exact impact would vary from building to building and would depend on the floor area of each storey, the number of persons per floor and the number of stairs. The increase in stair width would range from 70 to 1,400mm (as a maximum this is equivalent to a new stair), but typically it would be about 300-400mm. This equates to a floor area increase of about 0.5 to 3%, with a typical value of just over 1%[24].

88. Either floor space would be lost to accommodate the wider stair within the existing footprint or the building would need to be made larger (or maybe a combination of the two). This would result in one of two cost impacts: within the existing footprint the key cost would be loss of floor space for rental (the costs of stair construction are assumed to be offset by the savings in floor construction) whilst outside the existing footprint the main cost would be the increase in construction costs (assuming no additional land needs to be purchased). The additional construction cost would range from £14-54k per storey, with an average of about £34k and the annual loss of rental per storey would range from £3-13k, with an average of about £8k. The exact cost would be dependent on the total floor area and the number of stairs serving it.

89. Analysis of planning applications suggests that the proposal could potentially affect between 75 and 125 new-build offices in England and Wales each year. However, it is not clear what proportion of these affected buildings would use phased evacuation as opposed to simultaneous evacuation. Certainly the proposed amendment would shift the balance between these two alternatives. Overall, it is suggested that the cost impact nationally would be: £27m to £35m in terms of increased construction costs per year (which would be incurred as a one-off for buildings constructed in that year), or, £6.9 to £8.9m per year in lost rental (which would be incurred throughout the life of buildings).

Design compartment walls to take account of deflections during a fire

90. The proposal is to locate compartment walls where floor deflections are likely to be low. An alternative approach is to provide deflection heads to accommodate the anticipated movement, or even to design the wall to accommodate the increased load. As noted in paragraph 62, it is considered that the proposal is merely adopting guidance in the public domain which is already widely used in buildings. Therefore, it is likely to pose no significant additional cost.

[24] Hartless,R. & Purser,D. "BD2437 Relationship between stair width and evacuation requirements for workplaces and public buildings: Initial impact assessment". BRE Report 213245(6), December 2004.

Require the provision of information

91. The proposed requirement for builders/developers to provide information to owners/occupiers on fire safety design and procedures for operating and maintaining a building's fire protective measures (see paragraph 63) is already widely, though not universally, adopted and is seen as good practice. The main impact would be on Building Control Bodies (BCBs) who would be required to satisfy themselves that adequate information has been collated and is available. In some cases this is likely to be a very simple procedure, but in others there may be a need to review the documentation. There is therefore likely to be a small cost for this activity.

Implementation costs - training and familiarisation

92. Although there will be a small cost of publishing the new edition of AD B, the main implementation cost will be the need for training and familiarisation with the new legislative requirement and the amended guidance in AD B. An industry sector that would require particular training is the BCBs who are responsible for enforcing compliance. These can be either local authority building control departments or Approved Inspectors (AIs)[25]. Currently there are about 400 LA building control departments[26] and 24 individual AIs and 24 corporate AIs[27]. Together these Bodies employ some 4,000 staff directly engaged in building control activities in England and Wales. These are the specific public services that would be affected by the proposed changes to Part B. As such a Public Services Threshold Test (PSTT) has been undertaken – see Annex C. The results of this Test are that a full RIA to thoroughly assess the impact on public services is not required, and that the training and familiarisation cost for BCBs is likely to be some £0.56m.

93. There are also going to be training and familiarisation costs for all parts of the construction industry including builders, developers, consultants, contractors etc. Based on attendance levels at training seminars for the changes to the Building Regulations that came into effect in April 2002, the cost of training related to one part of the Building Regulations has been estimated at £3.5 million. This cost would tend to occur in year one and includes both external training and in-house training often using materials from seminars and workshops sponsored by Government, professional bodies and trade associations.

94. This cost is considered to be a general business expense rather than a burden. Good employment practices recommend that at least 1% of the employer's wage bill should be spent on training. Professional institutions that include designers, building control surveyors and project managers in their membership require that at least 20 hours per year are spent on continuing professional

[25] A number of companies and individuals have been appointed as Approved Inspectors under Part II of The Building Act 1984, and are BCBs in their own right. Under the provisions of the Act, an alternative building control service can be offered to designers and developers working on schemes throughout England & Wales.

[26] See http://www.labc-services.co.uk/

[27] See http://www.cic.org.uk/cicair/AIregister.htm

development. This indicates that employers in the construction industry should be spending at least £7.5 million on training. Building Regulations are a considered to be a core skill for all building designers and supervisors. It is also possible that some of the cost may be offset by the greater clarity and consistency the proposals would bring.

Summary of costs

95. The costs for Option 3 are summarised in Tables 3a and 3b.

Table 3a. Costs of meeting Option 3 (Residential – Dwelling)

Proposed amendment to Part B (Residential - Dwelling)	**Cost**
Remove the provision for a self closing device	Cost saving of £14.2m per year – negative impact on manufacturers/installers
Revise guidance on the provision of ventilation systems suitable for the protection of common stairways	Potential small cost saving (cost of installing measures offset by benefits of space savings and hence larger apartments)
ODPM is minded to introduce a provision for sprinkler protection in new high-rise apartment buildings	Cost is about £900 per apartment. Amounts to an annual national cost of £0.2m.
Provide an additional smoke alarm in the main bedroom Clarify that a suitable system of smoke alarms is needed where an extension is proposed	Cost is about £30-35 per alarm, amounting to an annual national cost of £4.8m No significant additional cost – small cost in those areas where not current practice
Remove loft conversion guidance so that loft conversions are treated as for a new three storey house.	No significant additional cost (cost of meeting current loft conversion guidance comparable to cost of meeting requirement for treating as 3-storey house)
Enhance requirement that cavity closure around windows and doors meets a reasonable standard of fire resistance	Material cost of £1-£11 per m to effect closure, amounting to cost of £0.8m per year in affected houses.
Total	**Compliance cost £5.8m per year** **Negative impact on door closer manufacturers** **[Cost saving £14.2m per year – see benefits]**

Table 3b. Costs of meeting Option 3 (Buildings other than dwellings)

Proposed amendment to Part B (Buildings other than dwellings)	**Cost**
ODPM is minded to introduce a provision for sprinkler protection in residential care homes	Cost is about £3.5 to £5k per home. Amounts to a national cost of £0.8m pa

Proposed amendment to Part B (Buildings other than dwellings)	**Cost**
Introduce provision for cavity barriers in floor voids	No significant cost (already largely met by industry)
Measures regarding inclusive design - bringing Part B into line with other guidance	No significant additional cost
Provide fire fighting shafts for buildings over 7.5m tall in PG 5 and remove this requirement for buildings falling into PG 7(a)	Additional cost to upgrade facilities to provide a fire fighting shaft is about £24k per building. Equates to a national cost of £22m pa
Repeal parts of Local Acts requiring a maximum compartment size for unsprinklered storage and replace with a single national requirement of 440,000m^3	No significant costs
ODPM is minded to introduce a provision for ½-hour fire protection to all corridors in -warehouses	Cost is about £180k per storey (£720k per building). Amounts to £21.6m pa.
Provide dry rising mains in escape stairs in unsprinklered buildings 18m-30m tall	Cost is £2k per storey for riser. Amounts to a maximum cost of £13m pa.
Discount an escape stair in tall (>30m) buildings with phased evacuation	Average construction cost £34k per storey. Annual average lost of rental £8k per storey. Amounts to a one-off cost of £27-£35m in increased construction costs pa, or an annual ongoing cost of £6.9-£8.9m pa in lost rental
Design compartment walls to take account of the deflections that occur during a fire - bringing Part B into line with other guidance	No significant additional cost – small cost where guidance not currently adopted
Provide information on fire safety design and procedures for operating and maintaining a building's fire protective measures	Small cost for BCBs to inspect information – unlikely to be significant – and offset by need to have information for RR(FS)O.
Total	**Compliance cost £88m per year**

ISSUES OF EQUITY AND FAIRNESS

96. Both Option 3 and, to a lesser extent, Option 2 would impose burdens on across all sectors of the building industry (developers, builders, manufacturers etc) and on clients who are requiring relevant building work to be carried out. There will clearly be some burdens on builders and developers who would have to provide additional fire protection and smoke control in some buildings.

97. The greatest burden is likely to fall on manufacturers of self closing devices with the removal of the provision to install such devices on doors in apartments (excluding doors to common areas) and dwellinghouses (except for garage doors). In addition, the proposals may have a disproportionate impact on large

scale non-domestic developments (eg office blocks) as the long timescale for procurement, design and construction mean that changes to AD B need to be anticipated. However, the some proposals would provide alternative approaches for compliance which would give builders and developers greater design scope (eg sprinklers could be provided instead of an alternative escape route from floors above 7.5m ground level in dwellinghouses).

98. BCBs, along with the rest of the industry, would have to bear the cost of training and familiarisation with the proposed new guidance but this is regarded as a general business expense rather than a burden (see paragraphs 92 to 94). In addition, the intention of many of the proposed amendments is to clarify guidance and to make compliance more straightforward which should result in a more effective and efficient building consent process.

99. There could also be impacts on charities and the voluntary sector if the proposal to install sprinklers in residential care homes is pursued and further information in respect of this proposal has been explicitly requested from consultees. Overall, the proposed changes are unlikely to have a significant adverse effect on the industry, nor would they place an unfair burden on small businesses. However, firms spend a significant amount of time keeping up to date with revised and new regulations, and the cost of this is likely to be proportionately higher for small firms than large ones.

100. It is considered that the proposals would not lead to a disproportionate impact on ethnic groups, nor on people living in rural communities.

Consultation with small businesses

101. Firms spend a significant amount of time keeping up to date with revised and new regulations. The cost of this is likely to be proportionately higher for small firms than large ones. The specific impact of the proposals on small businesses through the small firms' impact test will be carried out during the consultation, as agreed with the Small Business Service.

Competition assessment

102. It is expected that there would be minimal impact on UK competitiveness (as Building Regulations apply to building work and it makes no difference whether the work is carried out by or on behalf of UK or non-UK firms) or on competition within the UK markets (except where indicated above).

ENFORCEMENT AND SANCTIONS

103. Intended work that is subject to the provisions of Part B, or of any other Part of Schedule 1 to the Building Regulations 2000, must be notified to the local authority. The work is subject to inspection by the LA building control department, or, at the election of the person carrying out the work, by an AI.

104. Failure to comply with the requirements of Schedule 1 to the Building Regulations 2000 is a criminal offence. Local authorities also have powers to

require the removal or alteration of work that does not comply with the requirements of Schedule 1. The local authority's enforcement powers are suspended in a case where building control is being carried out by an AI. However, if a person carrying out building work fails to comply with instructions from an AI to rectify non-compliant work, the AI must cancel the 'initial notice' which brought the project under his supervision. Building control then reverts to the local authority.

105. No changes to this process are proposed as part of these proposals.

MONITORING AND REVIEW

106. This RIA and proposals would be reviewed in the light of the response to consultation and a revised version would be published should it be decided to proceed with amending the Building Regulations and AD B. It is ODPM's practice to investigate experience a reasonable time (usually about 3 years) after implementation to monitor how the changes are working in practice. This is likely to take a similar form to the "Backward Look" report (see paragraph 17) and will consider the actual impacts of the amendments in practice, including the issues explored in this RIA.

107. However, we recognise that there is a cost to industry of changes to this and to the other Parts of the Building Regulations. Therefore the questionnaire accompanying the consultation asks whether this time period is appropriate.

CONSULTATION

Within Government

108. This review of the Building Regulations has been conducted by the ODPM in conjunction with the Building Regulations Advisory Committee (BRAC) who are appointed as independent statutory advisors to the First Secretary of State. The technical Working Party steering the review includes members of BRAC and representatives from both the Business and Community Safety Forum and the Practioners Forum. It also includes a number of seconded experts and personnel from ODPM and the devolved administrations. Further, this RIA has been subject to review by ODPM's Better Regulation Unit, Cabinet Office Regulatory Impact Unit (CORIU) and the DTI's Small Business Service.

Public consultation

109. The proposals discussed in this draft RIA have been developed from issues raised during consultation with a broad cross-section of the industry through both the "Backward Look" and the "Forward Look" (see paragraphs 17 and 18 respectively). The proposals have been assessed by the BRAC Part B Working Party which includes a number of members drawn from industries directly affected by the proposed changes, including the Fire and Rescue Service. Wider industry and the general public now have the opportunity to consider and comment on the proposed changes during the public consultation exercise. This RIA together with the draft AD forms the core of the public consultation

package on which an extensive range of industry bodies are invited to comment and which is widely available both on the internet [Link – tba] and in hard copy.

SUMMARY AND RECOMMENDATIONS

110. This draft RIA has considered proposed revisions to Part B of the Building Regulations (England and Wales) and AD B which are concerned with Fire Safety. The proposals will typically impact upon new buildings and those existing buildings that are extended or materially altered.

111. Three options have been considered: (i) do nothing; (ii) encourage good practice; and (iii) implement the proposed changes to Part B/AD B as set out in Tables 1a and 1b.

112. A summary of costs and benefits for the three options is given in Table 4 below, and a more detailed summary of the costs and benefits of Option 3 are given in Tables 2a & 2b and 3a & 3b respectively.

Table 4. Summary of costs and benefits in England and Wales arising from implementation of proposed changes to AD B

	Costs	Benefits
Option 1	• No direct costs – but would forego benefits of Options 2 and 3	None
Option 2	• £0.5m per year *Government /industry* good practice campaign • £14m per year for all buildings[a]	Small.
Option 3	• £5.8m per year for dwellings • £88m per year for buildings other than dwellings • £0.56m familiarisation for BCBs (first year only)[b] • £3.5m familiarisation for industry (first year only)[c] • Negative impact on self-closing device manufacturers	• Cost saving £14.2m per year in dwellings • 10 lives saved and 352 injuries prevented in dwellings in 10-year period • 2 lives saved and 30 injuries prevented in buildings other than dwellings over 10 years • Additional benefits in terms of: - reduction in distress and disruption due to fire - future economic savings - environmental benefits (less water pollution, less water usage, improved air quality etc) - improved clarity of guidance and consistency in application • proactive measures to reduce future risk and assist in firefighting and search and rescue operations

[a] As noted in paragraph 67 about 10% of the industry would adopt measures for Option 2.
[b] For derivation of this cost see Annex C.
[c] The cost should be accommodated by the industry's basic training budget (see paragraph 93).

113. Table 4 shows that Option 1 should be rejected as, although it imposes no direct costs, it produces no benefits and would leave Part B out of step with related regulations and guidance. The benefits of Options 2 and 3 would be foregone.

114. Option 2 would have some costs which would be dependent on the take-up rate of the industry. The social housing sector is most likely to respond but this would leave large sectors unaffected. Given that life safety should have equal priority across all building types and sectors an option that is not implemented uniformly may give rise to problems.

115. Option 3 gives the highest costs of some £94m per year, most of which would be in the non-domestic sector (£88m). There would also be a one-off cost of around £4m to cover training and familiarisation of the industry. However, a large proportion (approximately 75%) of the non-domestic cost concerns the provision of proactive measures and so address future risks in new building types, as well as assist firefighting and search and rescue operations in tall buildings, particularly in the light of the WTC incident. As a consequence it is not possible to quantify the benefits that might accrue from these particular proposals at this time[28].

116. In dwellings the benefits are quite substantial in terms of lives saved and injuries prevented, ie 10 and 352 respectively over a 10-year period. In addition there would be an annual cost saving of £14m. **Cost-benefit analysis has shown that the proposals producing these benefits are cost effective in the longer term.**

117. It should be noted that the benefits in terms of lives saved and injuries prevented are cumulative – ie the benefits for the properties built in year 1 are experienced again in year 2, together with those for the properties built in year 2, in year 3 the benefits are experienced for properties built in each of the 3 years etc and continue to accrue exponentially in this way over the life of the building. However, other than a small element of routine maintenance associated with some measures (eg sprinklers) the costs and/or savings associated with building the properties in accordance with the revised guidance in Option 3 are only experienced when the properties are built. Therefore, over time the proposals become increasingly cost-effective.

118. For both building types Option 3 would bring other extensive benefits in terms of reducing distress and disruption due to fire as well as reducing environmental impacts in terms of water pollution (less water run-off), less water usage and improved air quality. There would be substantial economic benefits in terms of reducing damage and loss of buildings and contents but this goes beyond the current locus of Building Regulations.

119. There are also a considerable number of changes to AD B that would not have a significant cost impact but they would improve clarity of the document and ensure consistency of application.

[28] It is proposed to take steps to try and identify this during the coming year so as to inform final decisions following the consultation process.

120. In many ways the proposed changes to Part B are not significant (excepting proactive measures addressing future risks and improving firefighting and search and rescue operations), but this review has taken the opportunity to use risk assessment to target resources more effectively so as to maximise the number of lives saved and injuries prevented.

121. In terms of cumulative impacts, this sector is subject to a number of requirements under the Building Regulations in addition to Part B (Fire safety). Non-dwellings may also be subject to legislation governing fire safety in buildings in use (eg Fire Precautions (Workplace) Regulations 1997 (as amended)), environmental and health and safety legislation, and the Disability Discrimination Act 1995. Dwellings may also be subject to the requirements of Housing legislation, such as the need to carry out a risk assessment in Houses of Multiple Occupation. Although these changes would place additional burdens on this sector, they are not considered onerous given the potential risks to life safety that they address.

122. It is therefore proposed that Option 3 be adopted.

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XX 2005

Annex A – Developments in fire safety arena leading to the review and proposed changes to Part B and AD B

Fire White Paper

A1. A key development has been the publication of the Government White Paper *Our Fire Service*[29] in June 2003. This sets out the Government's desire to reduce the number of fires that currently occur by moving much more towards a fire prevention strategy. In particular, the White Paper, as well as the Public Sector Agreement (PSA3) target, calls for a 20% reduction in the number of accidental fire deaths in dwellings by 2010. Building Regulations is seen as one of the main strands' for delivery of this strategy, alongside Community Fire Safety and the Reform of Fire Law. However, it should be noted that, as any changes to Part B/AD B are unlikely to come into force much before the end of 2006, and as only approximately 1% of the building stock is affected by Building Regulations each year, their overall contribution to meeting this target in the short term will be relatively small compared to measures that impact on the majority of, particularly existing, buildings.

Underpinning evidence

A2. The ODPM has commissioned a number of pieces of work related to fire safety. High profile pieces of research work undertaken include 'The Effectiveness of Residential Sprinklers', 'The design of common access areas of flats and maisonettes', 'Cavity barriers' and 'The propensity of linings to produce smoke and burning droplets'. [Links to be added idc]

A3. A further high profile research project sponsored by ODPM is on the subject of fire safety in tall buildings. Specifically, the Building Disaster Assessment Group (BDAG)[30] was established to consider the issues, for fire authorities and their fire brigades in the UK, that have been highlighted by the World Trade Centre incident of 11th September 2001. The terms of reference of BDAG were:

> "To consider the potential implications, for the UK fire service, of terrorist activities within the built environment, taking into account fire authorities responsibilities for ensuring the provision of appropriate fire precautions for buildings in use and safe operating procedures that reflect building design."

A4. More generally, BDAG is looking at the interaction between fire brigade operational responses and building design, assessing the way the underlying assumptions behind building regulations are based on traditional fire service operational practices, and whether they are still appropriate in the light of current fire service operational practices. To this end, BDAG is managing a group of research projects including:

- physiological performance criteria for fire-fighting,
- firefighting in under-ventilated compartments and
- firefighting media in high-rise buildings.

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[29] Further details can be found at: http://www.odpm.gov.uk/stellent/groups/odpm_control/documents/contentservertemplate/odpm_index.hcst?n=3341&l=1

[30] Further details can be found at: http://www.odpm.gov.uk/stellent/groups/odpm_fire/documents/page/odpm_fire_029625.hcsp

Annex B – Rationale and risk assessment behind proposed amendments to Part B and AD B

Introduction

B1. The risks of death and injury in fires within each purpose group and, where possible and appropriate, for each of the proposed amendments in Tables 1a and 1b have been evaluated. Generally, where the proposed amendment is merely offering an alternative approach or is bringing AD B into line with other standards and guidance it is considered that the change is risk neutral and is not discussed below.

Purpose Group 1(a) - Apartment buildings

Self-closing devices

B2. The use of self-closing devices on fires doors has been queried because some types do not effectively close the door and their use can reduce the fire resistance of the door. Further, householders regularly complain that these devices are a hazard to children and are a nuisance to other occupants. As a result such closers are often disabled or removed soon after occupation. Consequentially, the proposal to remove the provision for self-closing devices on doors (other than those opening onto common escape routes) is considered to be risk neutral. The need to close doors, especially at night, is referred to in AD B and is reinforced via community fire safety programmes. (see also paragraph B10 Dwellinghouses)

Smoke ventilation of common access areas

B3. Research[31] has shown that the current provisions in Part B in respect of external wall ventilation to control smoke in stairwells and lobbies and corridors of apartment buildings are inadequate. There is concern that occupants trying to escape from a fire can be overcome by smoke. Analysis of fire statistics shows that some 60 people outside the room of fire origin die each year in apartment buildings and about 70% of these are overcome by smoke, gas or toxic fumes. A further 10% are killed by a combination of burns and being overcome by smoke/gas.

B4. However, although the fire statistics show whether a death or injury occurred outside the room of origin, they do not reveal whether a casualty was in another room in the affected apartment. It is suggested that many of these casualties are in the apartment itself and so would not be addressed by this proposal. The statistics do however identify casualties on floors other than that where the fire took place, and these would be addressed by the proposal.

B5. On this basis, there are some 15 fatalities per year and 50% of them are overcome by smoke/gas. In addition, there are nearly 1,000 injuries per year

[31] Miles,S. "Smoke ventilation of common access areas of flats and maisonettes and their relationship to the provision of compartmentation and means of escape procedures". BRE Report 213393, September 2004.

and again about half of them are affected by smoke/gas; a further third are for precautionary check-ups (see paragraph 21).

Additional smoke alarm

B6. The newly published BS 5839 Part 6 (Code of practice for the design and installation of fire detection and alarm systems in dwellings) includes the provision of a heat alarm in the principle habitable room. The concern with installing a smoke alarm in such a room is that false alarms may lead to the alarm being disabled. However, smoke alarms do potentially give householders more time to escape as they are more sensitive than heat alarms, particularly if located in other rooms in the dwelling.

B7. Detailed analysis of fire statistics showed that there are some 65 deaths per year in dwellings which have operational smoke alarms. The majority of these casualties (around 45%) of these occur in the lounge, with about a third in bedrooms and just under a quarter in kitchens. The impact of four alternative proposals were assessed: (i) additional heat alarm in the lounge, (ii) additional smoke alarm in the lounge, (iii) additional smoke alarm in the bedroom, and (iv) additional heat alarm in the kitchen. Effectiveness factors were assigned in terms of casualty reduction for each option was made based on a review of available experimental data. In particular the results of a research project on the effectiveness of residential sprinklers[12] was used as it also involved a number of fire tests using domestic fire loads with smoke and heat detectors present.

B8. It is therefore proposed to require the installation of an additional smoke alarm in the main bedroom in both apartment buildings and dwellinghouses.

Sprinkler protection for high rise apartments

B9. There is continued concern about the number of deaths and injuries arising from fires in dwellings (see paragraphs 20 to 21). ODPM is keen to explore all approaches for reducing these risks and so is minded to introduce sprinkler protection for high rise apartments. The issue of residential sprinklers in general has been already been subject to separate preliminary analysis which shows that the risk of death and injury increases with height of the apartment building. However, more detailed analysis undertaken subsequently shows that a large proportion of deaths occur at ground floor level, typically as a result of a fire at that level. One explanation may be the poorer security of much of the older existing stock of high rise apartment buildings in England and Wales, which also tends to be located in areas where there is a high degree of social deprivation.

Purpose Group 1 (b) and 1 (c) - Dwellinghouses

Self closing devices

B10. This issue is the same as that discussed in paragraph B2 for apartments. Consequentially, the proposal to remove the requirement for self-closing

devices on doors (other than those opening to garages) is considered to be risk neutral. The need to close doors, especially at night, is referred to in AD B and is reinforced via community fire safety programmes.

Additional smoke alarm

B11. It is proposed to require the installation of an additional smoke alarm in the main bedroom in both apartment buildings and dwellinghouses so this issue is discussed in paragraph B6.

Purpose Group 2(a) – Residential, institutional

Sprinkler protection for residential care homes

B12. As noted above in paragraph B9 there is concern about the number of deaths and injuries in dwellings and other residential premises. In particular, there was a major fire at a care home in Uddingston, Scotland in January 2004 where 14 people died[32]. This was followed by fires in a care home in Pembrokeshire which resulted in 2 deaths and 4 injuries, in Cambridgeshire which resulted in 2 deaths and 3 injuries and in Redcar which resulted in 1 death and 1 injury. ODPM is keen to explore all approaches for reducing these risks and so is minded to introduce sprinkler protection for residential care homes.

B13. The issue of residential sprinklers in general has been already been subject to separate preliminary which shows that the risks of death and injury in residential care homes are equivalent to that in apartment buildings and certainly greater than those seen in single occupancy dwellinghouses. However, the annual frequencies of death and injury is relatively small in comparison to those seen in single occupancy dwellinghouses simply because there are far fewer care homes.

Purpose Group 5 – Assembly and Recreation

Fire fighting shafts

B14. In the current edition of Part B, buildings in Purpose Groups 4, 6 and 7(a) are required to have fire fighting shafts if they are more than 7.5m tall but less than 18m tall. (All buildings over 18m tall require fire fighting shafts.) Analysis of fire statistics shows that the risk in terms of the number of casualties per fire is greater for buildings in Purpose Group 5 compared to those in Purpose Group 7(a), specifically 75 casualties per 1,000 fires compared to 47 casualties per 1,000 fires. Therefore, it is proposed to remove the requirement for fire fighting shafts for buildings in Purpose Group 7(a) over 7.5m in height and apply this requirement to buildings in Group 5 instead. Analysis of planning applications shows the rate of construction of affected buildings in this Purpose Group is four times greater than those in Purpose Group 7(a).

[32] Further details can be found at: http://www.scottish.parliament.uk/business/officialReports/meetingsParliament/or-04/sor0204-02.htm

Purpose Group 6 and 7(a) – Industrial and Storage

Local Acts and compartmentation

B15. There are over 20 Local Acts that contain provisions relating to the control of buildings (including the London Building Acts). However, a number of these Acts contain provisions that are similar to other legislation. They include provisions for large storage buildings, tall buildings and parking places in respect of fire alarms, smoke control, sprinklers and fire service access. Research into the impact of the additional requirements of Local Acts showed that they have no significant impact on life safety, but do improve property protection in warehouses and car parks[33]. It is therefore proposed to repeal those parts of Local Acts requiring a maximum compartment size for unsprinklered storage (this is usually about 7,000m^3) and replace with a single national requirement of 440,000m^3. Using a typical warehouse height of 11m this is equivalent to a floor area of 40,000m^2.

Purpose Group 7(a) - Storage

Corridors in warehouses

B16. In recent years there has been a tremendous growth in so called self-storage warehouses. These buildings are subdivided into a series of secure spaces which are then rented out to private individuals and businesses.

B17. The operators have limited control over the fire loading in the buildings (ie flammable materials may be introduced) and there is typically no fire resistance between each storage space. The extensive subdivision of these buildings also results in a more complex layout than has been assumed for storage buildings in the past. In particular, users of such facilities may be unfamiliar with escape routes, and some of these warehouses have out-of-hours access when staff would not be present. There is therefore some concern that a significant fire in one of these buildings may be inevitable and would present a considerable risk to both the occupants and to fire-fighters.

B18. Information from the Self-Storage Association of the UK (SSAUK)[34] shows that there are currently about 280 such facilities in England and Wales which are run by its members, although there are probably more run by organisations and individuals that are not members of the SSAUK. Given that these types of buildings have only appeared in the last few years any incidents would not have been recorded in the available fire statistics. Anecdotal evidence suggests that whilst there have been some minor fires associated with self-storage warehouses, there have been no deaths or injuries. But, given the potential for problems (paragraph B17) and the tremendous growth rate in this sector (about 35% per year), it is considered that these buildings require additional fire protection.

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33 Fraser-Mitchell,J. "Effect of Local Acts on fire risks". BRE Project Report No.216664(7), Dec 2004.

34 For further details see: http://www.ssauk.com/

Fire fighting shafts

B19. As discussed in paragraph B14 it is proposed to move the requirement for fire fighting shafts in these types of buildings to buildings in Purpose Group 5 because of the greater risks in Group 5 buildings.

Purpose Groups 3 to 7

Dry rising mains

B20. A key element of the work on fire safety in tall buildings (see paragraph 15 as well as paragraphs A3 to A4) has been a physiological assessment of firefighting and search and rescue operations in the built environment. Firefighters were asked to carry out a set of firefighting and rescue exercises whilst measurements of their core body temperature and other physiological parameters were recorded. A key conclusion from this work is that firefighters may not be able to penetrate safely more than 34m into a compartment to rescue a casualty. This conflicts with the current design guidance within AD B which suggests that firefighting shafts should be arranged such that this distance is no more than 60m. Therefore it is proposed that additional dry rising mains in unpsrinklered buildings between 18 and 30m tall should be provided in stairways such that the penetration distance along a route for laying hose does not exceed 45m buildings. This is intended to go someway towards addressing this potential conflict. Other measures will include consideration of changes to firefighters clothing, equipment and procedures. Whilst statistics indicate that these issues are not problem in the UK, there is evidence that they may increasingly become so as the number of high rise buildings, and the height to which they are built, increases. The proposal is, therefore, a proactive measure to ensure that in the future fire fighting and search and rescue operations can be more effective

Discounting stairs

B21. Research into the relationship between stair width and evacuation requirements of buildings has shown that there is a potential conflict between persons escaping down a stair and firefighters undertaking firefighting and search and rescue operations over several levels within the same stair enclosure[35]. It is therefore proposed to discount an escape stair (i.e. assume it would not be available for escape purposes in the event of a fire) in tall (30m+) buildings with phased evacuation. (Such buildings with simultaneous evacuation are not affected.) As a result staircases in many of these buildings would need to be made wider. Again whilst statistics indicate that these issues are not problem in the UK, there is evidence that they may increasingly become so as the number of high rise buildings, and the height to which they are built, increases. The proposal is, therefore, a proactive measure to ensure that in the future fire fighting and search and rescue operations can be more effective.

[35] Purser,D. "Relationship between stair widths and evacuation requirements for workplaces and public buildings". BRE Report 213247, June 2004.

Design compartment walls to take account of deflections during a fire

B22. Research[36] into the performance of compartment walls in a fire indicates that unless appropriate measures are taken deflections can lead to a breach of the wall thereby leading to fire and smoke spread, compromising means of escape and ultimately premature structural collapse. Fire statistics do not indicate that there is a particular problem although any failure of the wall would be likely to occur in the latter stages of a fire when any occupants would be more in danger from toxic fumes rather than structural collapse. Nevertheless, there is sufficient concern that it is proposed that compartment walls are properly designed to ensure this does not happen.

All Purpose Groups

Cavity barriers

B23. The concern here is that if cavity barriers in floor voids and cavity closure around windows and doors is inadequate then there is scope for uncontrolled fire spread in buildings thereby increasing the risk of death and injury.

B24. Unfortunately, fire statistics do not record the level of detail required to establish exactly the role played by fires in floor voids and cavities. However, a report[37] for ODPM describes a number of incidents where fire spread through building cavities, including a town house, a warehouse, a dwellinghouse and a timber frame block of flats. Currently, the quantities and types of cables used in service voids is uncontrolled and the surfaces of products such as pipe insulation is restricted to Class 1. Both these products offer a potential risk for unlimited, unseen fire spread to occur within the floor void when no cavity barriers are present. Certainly damage caused by such fires can be extensive as shown by the incident in timber framed block of flats where 15 flats were damaged due to lack of adequate fire stopping. On the basis of limited statistics it is suggested that there may be a handful of such fires each year but that there appears to be no injuries or deaths directly attributable to such fires. The main problem is that of damage resulting from extensive fire spread.

[36] Lennon,T.

[37] Colwell,S. "Review of cavity barrier guidance in AD(B) and general literature review". BRE Report 213419, December 2003.

Annex C – Public Services Threshold Test (PSTT) for Part B

C1. As discussed in paragraph 92 the proposed changes to Part B would directly affect Building Control Bodies. The estimated costs for training and familiarisation - which are a one-off - are set out in Table C1.

Table C1. Cost calculation table for PSTT for proposed changes to Part B

Number of public service staff affected (per group)	Time impact per person Total additional days	Time impact per group* Total additional days	Total additional monetary cost (£ million)**
400 Local Authority Building Control Departments	1 day	3,500	£0.49
24 individual Approved Inspectors and 24 corporate Approved Inspectors	1 day	500	£0.07
Total	**1 day**	**4,000**	**£0.56**

* Based on 4,000 staff in England and Wales engaged on building control activities.
** Based on average annual salary of £35k.