

## **Fire Safety in Building Design: Turning up the Heat on AD B**

On 18th December, 2006, following a four month consultation process back in 2005, the Department for Communities and Local Government announced changes to Part B (Fire Safety) of the Building Regulations and the guidance supporting the implementation of these regulations in Approved Document B (AD B). These changes come into force on 6 April, 2007, and will affect most building work in England and Wales undertaken from this date including the erection, extension or alteration of a building along with the requirement to consider fire safety in building design. The documents also include amendments to the guidance on domestic loft conversions, the use of door-closing devices in dwellings and the provision of sprinklers in tall blocks of flats.

According to the Department, the new regulations “reflect recent experiences of actual fires, developments in construction, research findings and comprehensive stakeholder engagement”. This view is endorsed by the Fire and Buildings Regulations minister, Angela Smith, who said protecting people from fire in their homes and workplace remains a key element of Government policy on fire safety.

The Passive Fire Protection Federation (PFPF) broadly welcomes the revisions to the AD B. In particular, it commends the efforts to make the guidance more accessible and easier to use. This includes splitting the guidance into two volumes – one of which relates exclusively to dwelling houses the other to all other buildings. Concentrating on the requirements of different types of buildings and tailoring the level and degree of fire protection accordingly can only be a good thing.

### **Six out of ten from the PFPF**

While AD B in its present state represents an important step in the right direction, the PFPF believes there are a number of important issues which have not been covered by the guidance and which urgently need to be addressed. Additionally, PFPF is also concerned that AD B is ill-equipped to ensure fire safety regulations keep pace with rapid advances in technology. In anticipating the sort of document that might one-day replace AD B guidance, the PFPF believes it is important to consider how such a document could be flexible enough to accommodate future innovation. Moreover, the PFPF believes that the time has now come for Government, together with other

interested parties, to begin the process of drawing up a new set of guidelines to address these and other outstanding issues. This, it should be stressed, should not be a further revision of AD B but a wholesale review of the guidance on fire safety. While building on everything AD B has achieved over the years, if we are to meet the needs of the future we ought to begin with a comprehensive reassessment of the guidance as a whole.

### **Who judges the expert?**

Of foremost concern to the PFPF is the fact that under the revised AD B guidelines the important question of third party schemes has been left wide open. The Federation welcomes the fact that the revised guidelines do make reference to Third Party Certification schemes and endorse their use by Building Control Bodies. Consequently manufacturers and contractors who are members of schemes will enjoy some advantage in that their products will be more readily recognised as suitable, and their work more readily accepted as compliant than those who are not registered. In the view of the PFPF, however, the guidance for Building Control Bodies is currently inadequate because of the simple failure to establish objective criteria for determining what makes a good or bad certification scheme. At present, the criteria remain unclear, subjective and open to interpretation. The PFPF website can provide a wealth of information to help Building Control Bodies make an informed judgement on the adequacy of a given scheme but clearly this is not a long-term solution to the problem. Future revisions to AD B must therefore address the shortcomings of Third Party Certification schemes. Critically, the qualification for schemes should not be left to the industry to define. The PFPF believes these schemes should also be extended to the accreditation of the experts whose job it will be to judge these schemes within the remit of the Approved Document B. What constitutes 'expert' opinion? Without objective standards agreed across the industry the validity and usefulness of third party schemes is in danger of being fatally undermined.

### **Building as a whole, not the sum of parts**

One revision to AD B, the significance of which could easily be overlooked, is the inclusion of a paragraph on the importance of accommodating the predicted deflections of floors in the design of compartment walls to prevent disruption of compartmentation (8.27). The importance of this clause stretches far beyond its apparent meaning as it directs us to a fundamental principle of satisfactory fire safety design. If a beam occupying the same space as a fire wall deflects during a fire, the

wall must be capable of accommodating this deflection. This goes to the very heart of the principle that a building should be viewed holistically rather than as separate elements. The specific question of anticipating and accommodating deflections, should remind engineers of the wider need for integrated, balanced design and the importance of a holistic approach. Fire safety measures must take this principle into account and resist the temptation to address any one element in isolation. The PFPF believes that this point needs to be made more explicitly and the broader implications of it emphasised. Further to this, in paragraph 0.30 of the General Introduction to AD B there is mention of the use of Fire Safety Engineering (FSE) as an alternative to AD B. It must be stressed however, that this is permitted for individual parts of a building only when all other parts conform to AD B. You cannot engineer one element of a building at the expense of any other element.

### **What about protecting property too?**

In the view of the PFPF, there is also a need to address the link between fire safety and property protection. Although section 0.14 of the revised AD B states the case for the consideration of fire safety in the context of property protection, rather than exclusively for the purpose of protecting life, it fails to establish this as integral to the core objectives of building regulations. In so doing, it grossly underestimates the real cost of fire and the wider impact it has on our property and prosperity. This represents another area where PFPF believes that AD B guidelines can and should be improved upon. The economic burden of fire to our society stands at a staggering £55m per week<sup>1</sup>. This fact alone should be enough to persuade the Government and other interested parties that more needs to be done in addressing the devastating impact of fire above and beyond the fact that it can kill. In failing to do so, as AD B does at present, it fails to reflect the true cost of fire not only on the individuals and businesses directly affected by fire but also on the economy as a whole.

### **Fire doesn't stop at 30m: nor should fire regulations**

The final significant omission from AD B is the lack of specific guidance on the design of tall and multifunctional buildings. These structures have become such a ubiquitous and integral part of our urban landscape that the need to consider their inherent and particular fire safety requirements is now long overdue. It is hard to imagine that anyone would seriously argue that tall buildings do not have their unique safety considerations in respect of fire safety. On which basis, it is therefore no

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<sup>1</sup> According to the Government-led Arson Control Forum

longer satisfactory for the regulations to stop at “buildings over 30 metres”. On this specific point, for instance, the revised guidelines fail to recognise glazed facades as a possible vehicle for the spreading of fire. Given the ongoing race to build taller and taller structures and the ever-growing complex dynamics of building occupancy, this seems another oversight in the guidelines. Likewise, again in this context, it could be argued that the significance of smoke and burning droplets has also been ignored.

### **Time for a proper review**

Looking at AD B as a whole, the PFPF believes the guidelines have now been progressed as far as is practically possible in their current form. Historically they represent an excellent set of guidance that has stood the test of time and significantly advanced fire safety in England and Wales. But what of the future? The PFPF believes AD B will struggle to keep pace with the rapid increase of technological advancement. It is important to remember that much of the prescriptive guidance contained within AD B is founded on technical work done as long ago as the 1960s. It should therefore surprise no-one that AD B is fast approaching its use-by-date. It needs to be rigorously re-evaluated for current validity in the context of the more than four decades of technological development. Moreover such an assessment should also look forward to the likely direction of future advances across both the fire safety and construction industries to create guidelines which will remain fit for purpose in the foreseeable future. Nothing short of such a complete and comprehensive review will meet the needs and requirements of fire safety in all aspects of the built environment. The PFPF believes that a number of opportunities to embark on such a review have already been missed. We hope, however, that the release of this milestone revision of AD B will mark a turning point and that the Department for Communities and Local Government will now authorise and support a fundamental technical review to address the complex issues of modern construction, design and practice. In the view of the PFPF such a review is now overdue.

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Editors notes: The Passive Fire Protection Federation (PFPF - [www.pfpf.org](http://www.pfpf.org)) is dedicated to growing awareness and giving advice on fire protection, and the Regulatory Reform (Fire Safety) Order 2005 (RRO). Our members include the Chief Fire Officers Association, the Department of Communities and Local Government (previously the ODPM), the Royal Institute of Chartered Surveyors and the Building Research Establishment. Our website carries advice on what to check and best practice in all passive fire protection measures