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Fire and Tall Buildings – Progress on safety?

By Frank Newbery

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In this article I look at how the official guidance on Fire Safety in tall buildings has been modified in the wake of the Grenfell Tower fire, what the current requirements are, and what further modifications might be desired or expected in due course.

Of central importance is the Building Regulations Part B guidance document Approved Document B, *Fire Safety, Volume 2 – Buildings other than Dwellings*, 2006 edition incorporating 2007, 2010 and 2013 amendments (“ADB”). This was the last edition before the Grenfell fire. Especially problematic is its “Section 12: Construction of external walls”, which provides guidance on how to comply with the core Building Regulation requirement B4(1), i.e. that “The external walls of the building shall adequately resist the spread of fire over the walls and from one building to another, having regard to the height, use and position of the building”.

Background

Following the Grenfell Tower fire in June 2017, the DCLG [1] commissioned a series of tests from the Building Research Establishment (“BRE”) to assess the fire performance of various combinations of cladding materials. These were based on the British Standard BS 8414 tests, performed on rigs of substantial size built to simulate actual building construction so far as practicable and within standardised test parameters.

The BRE also offered a relatively simple screening test for combustibility [2] resulting in “Category 1”, “2” or “3” classifications for small samples of cladding materials such as Aluminium Composite Material (“ACM”) panels. BRE reports on these tests include DCLG advice on whether the materials met ADB requirements for limited combustibility.

These processes together with forensic examination of buildings and their project records have made it possible to assess compliance with official guidance, and the presence or degree of any real fire danger to existing buildings and their occupants. Retrospective cases of this sort often give rise to disputes concerning whether actual compliance had originally been achieved, and/or whether reasonable skill and care (according to the norms of that time) had been exercised by responsible designers, and what type or degree of remediation would then be required, if any.

In parallel with the technical analyses, Dame Judith Hackitt was commissioned by the UK Government to examine the current regulatory framework relating to fire safety, and report on shortcomings and potential improvements. Dame Judith produced an interim report in December 2017, then a full report in May 2018 [3], (“the Hackitt Report”).

The Hackitt Report found that current regulatory systems for fire safety were “not fit for purpose” and, more specifically, that (a) project roles and responsibilities were unclear, (b) the current ADB could be “ambiguous and inconsistent”, (c) “processes that drive compliance [were] weak and complex”, (d) “competence across the system [was] patchy”, (e) “product testing, labelling and marketing [was] opaque and insufficient”, and (f) safety concerns of residents often went unheard.

The recommendations of the Hackitt Report were summarised in a flow chart at Appendix B: “Mapping the new building safety regulatory framework – construction and occupation of a higher-risk residential building (HRRB)”. The proposed framework recommended (inter alia) (a) the formation of Joint Competent Authorities (“JCAs”) comprising Local Authority Building Standards, fire and rescue authorities and the Health and Safety Executive to oversee better management of safety risks, (b) clear “dutyholder” roles and responsibilities, (c) Robust “gateway points” to ensure preservation of objectives through a project’s phases, and (d) “A single, more streamlined, regulatory route to oversee building standards”.

In respect of a project’s fire safety, the above measures might be expected to increase clarity, awareness, continuity, integration and ultimate effectiveness.

In September 2018 the MHCLG (former DCLG) issued a circular letter “Assessments Of External Wall Cladding Systems” to Heads of Local Authority Building Control and Approved Inspectors. This required building control authorities to be more strict in ascertaining compliance with the current ADB requirements for “limited combustibility”, or alternatively to ascertain success under full-scale and fully relevant BS 8414 / BR 135 testing. This advice effectively ended the discretion previously exercised by

Building Control Authorities' in accepting "desktop study" alternative routes to compliance.

Current Guidance

Official amendments to ADB were published in November 2018 with notice that they would take legal effect on 21 December 2018. Key features of this guidance are as follows:-

- a. It applies to England (and to Wales in some circumstances). It does not apply where a building notice or full-plans building control application was made before 21 December 2018, provided that work was started before 21 February 2019.
- b. The core requirement B4(1) of the 2010 Building Regulations (as quoted above) remains unaltered [4].
- c. Regulation 7 for *Materials and Workmanship* has been extended by additional paragraphs 7(2) to 7(4).
 - i. Regulation 7(1) reproduces the original generalised requirement.
 - ii. Regulation 7(2) establishes that external wall materials of a "relevant building" must conform to European classifications [5] "A1" or "A2-s1, d0". This is a higher and more strict requirement than "limited combustibility".
 - iii. Regulation 7(3) lists several exemptions from paragraph 2, some of which are significant and potentially problematic.
 - iv. Regulation 7(4) defines the scope of application, i.e. "relevant buildings" with a storey higher than 18 metres from ground level. This echoes the 18m threshold already set by ADB for use of "limited combustibility" materials.
- d. The whole of ADB Section 12: *Construction of external walls* is replaced. Some notable changes and continuities are as follows:-
 - i. There is a much shortened and simplified "Introduction".
 - ii. The original paragraph 12.5 requirement that "The external envelope of a building should not provide a medium for fire spread if it is likely to be a risk to health or safety" is not reproduced (but see item #v below).
 - iii. The new paragraph 12.4 retains the BS 8414 / BR 135 test compliance option [6] as an alternative to complying with subsequent paragraphs 12.5 to 12.8.
 - iv. The new paragraph 12.5 headed "External surfaces" together with the new Diagram 40 reproduces in detail the former paragraph 12.6 / Diagram 40, but with the additional provision that Regulation 7(2) is to prevail where applicable.
 - v. The new paragraph 12.6 headed "Insulation materials/ products" reproduces the wording of the former paragraph 12.7, again including the term "filler material" without any closer definition of what that might include. It adds however that Regulation 7(2) is to prevail where applicable, plus a "Note 1" requiring "consideration" of the impact that materials might have on the risk of fire spread.
 - vi. The new paragraphs 12.7 and 12.8 headed "Cavities and cavity barriers" are shorter and no more onerous than their predecessors, except that the primacy of Regulation 7(2) is repeated.
- e. The new guidance paragraphs for Regulation 7 largely restate or emphasise the core regulation's text (see item #c above). Additional advice includes:-
 - i. (12.13) Reassessment under Regulation 7 must be undertaken if a change of use brings a building within its scope.
 - ii. (12.14 a) Membranes used in external walls are to have a minimum European classification of Class B-s3, d0.

Further official amendments to ADB were published in December 2018 with notice that they would take legal effect on 21 January 2019 for use in England.

In relation to fire safety of tall buildings, the main feature of these further amendments was replacement of the first two paragraphs of ADB "Appendix A: Performance of materials, products and structures" by five new paragraphs.

The new paragraphs are more strict and emphatic concerning reliance upon performance classifications and standards, and how they may or may not be used to underpin assessments of product suitability.

This amendment addresses the previous susceptibility of design processes to ambiguity and confusion arising from the complex, tangled and sometimes unhelpful interrelation of ADB guidance, standards and manufacturers' claims.

The later paragraphs of ADB Appendix A remain however unaltered. These include the difficult and

intricate paragraphs which cite the BS 476-6 and -7 tests, and how they give rise to the “National” fire performance designation, “Class 0”. Also there has been no attempt to amend the potentially confusing alternative applicability of “National” and “European” criteria in Tables A6 and A7.

The Future

It is unlikely that the development of revised regulations for tall buildings will halt at this point. The MHCLG continues to review and consult upon the matter, and the continuing official inquiry into the Grenfell Tower fire itself is likely to sustain interest and prompt further insights into what could or should be done to prevent further occurrences. Findings in relation to ACM panels have also prompted critical re-examination of other cladding products such as zinc composite material (ZCM) panels and insulated render systems.

The Royal Institute of British Architects has taken a close and critical interest in the unfolding situation, and on 1 March 2019 issued a response to the MHCLG’s call for evidence in its ADB document review [7]. The RIBA recommends “a comprehensive, transparent and fundamental reappraisal, rather than amendment or clarification”. Its “baseline prescriptive” requirements include:-

- a. Sprinklers and centrally addressable fire alarms in all new and converted residential buildings and, where materially altered, existing residential buildings higher than 18m.
- b. At least two stairways as alternative means of escape in all new residential buildings where the top floor is more than 11m above ground level, or over three storeys.

Other recommendations include:-

- c. Inclusion of all residential buildings in future revisions of ADB.
- d. Clearer ADB guidance which avoids alternative routes / interpretations. The RIBA finds a “lack of logical flow” in the current document.
- e. Greater focus on non-constructural factors such as means of warning and escape.
- f. Better coordination between ADB and British Standards, particularly with BS 9991 *Fire safety in the design, management and use of residential buildings – Code of practice*.
- g. Reassessment of ADB Diagram 40 “Provisions for external surfaces and walls” and revision to exclude the “national class” criteria.
- h. Greater clarity regarding the inclusion or exemption of products / materials under Regulation 7’s new paragraphs (2) and (3).

The Royal Institute of Chartered Surveyors and the Chartered Institute of Building have both since joined the RIBA in signing a joint demand for the government to require the installation of sprinklers in all new and converted residential buildings, hotels, hospitals, student accommodation, schools and care home buildings more than 11 metres high, including existing buildings when substantially refurbished [8].

If all these recommendations are taken into account, the outcome should be an increase in fire safety. However, it is likely that the current guidance for fire safety in tall buildings will require further and more fundamental revision if the clarity, consistency and effectiveness of the regulatory framework envisioned by the Hackitt Report is to be achieved.

[1] Department for Communities and Local Government, now re-named as the Ministry of Housing, Communities and Local Government (“MHCLG”).

[2] An abbreviated version of BS EN ISO 1716:2010, Reaction to fire tests for products — Determination of the gross heat of combustion (calorific value).

[3] Downloadable from: www.gov.uk/government/publications/independent-review-of-building-regulations-and-fire-safety-final-report

[4] except that a comma after “another” is omitted. This probably does not alter its meaning for practical purposes.

[5] BS EN 13501-1:2007+A1:2009, Fire classification of construction products and building elements.

[6] Now citing the latest editions of those documents.

[7] www.architecture.com/-/media/files/press-release/riba-response-technical-review-ADB-010319.pdf

[8] www.rics.org/uk/news-insight/latest-news/fire-safety/sprinklers/

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Expert evidence in construction cases – a view from the tub

By Bart Kavanagh

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Listening

At a recent event on negotiation skills at the Academy of Experts the speaker, a negotiator in international and domestic hostage situations, emphasised that the most important skill he needed was listening. And his first rule of listening? – don't ask questions. His view, based on experience, was that people will say much more if they are not guarded and they are less likely to be guarded if they are allowed, or encouraged, to talk freely.

It's a simple thought – if you want to hear something, you need to listen; if you need to listen, you need to let people talk. But let's put this thought to one side for a few moments.

Our adversarial system

In the UK and other Common Law systems and in international arbitration, we are all familiar with the adversarial legal system that we, each in our own way, live and work with every day. Nevertheless, it is worth reviewing briefly the framework within which expert evidence sits.

The business of a trial, or other determinative hearing, is to take a set of factual events, consider the duties and obligations that are imposed under the applicable law, and apply it to the events. Questions of law are addressed in legal arguments, which are put forward by counsel and the opposing sides are permitted to test and challenge these arguments with respect to logic, relevance and other factors. Of course, our courts and tribunals come ready equipped with a joint independent expert on the law, variously addressed as 'Sir/Ma'am', 'Your Honour' or 'My Lord/Lady' depending on exactly which tribunal you find yourself in. This expert has the jurisdiction and competence to decide which legal argument, or counter argument is correct, or is to be preferred, and why.

Evidence of the facts or events that are at issue is presented and then tested and challenged regarding its veracity so that the relative strength of the opposing evidence can be determined by the tribunal. In our adversarial system the main tool for challenging and testing the veracity of evidence is cross examination. But here we need to stop and consider the differences between factual evidence and expert opinion evidence.

Factual evidence is provided by witnesses who can tell the court something that they saw or something that they know; a fact or series of facts. Witnesses of fact could mistake or misinterpret events or, on occasions, have been held simply to be mendacious. Cross examination can be an effective tool for demonstrating whether a witness is more, or less, reliable and credible than another witness.

Expert evidence is the expression of opinions, not facts and it is given by an expert with an express duty to the court, which overrides any duty to the client. There may be several related factual matters such as; is the expert suitably qualified with sufficient relevant experience in the matters at issue to be of assistance to the tribunal, which can only be tested in cross examination, but I would argue that cross examination alone will provide the tribunal with only limited assistance in fully understanding the technical aspects of expert evidence.

This is where we need to look again at the idea of listening that we considered at the beginning.

Cross examination is not an exercise in listening. Its purpose is to elicit only the specific information that counsel seeks in order to promote their client's case or damage that of their opponent. It is designed to expose errors, deficiencies and inconsistencies in evidence in order to persuade the tribunal that an alternative proposition is more likely to be true.

Opinions, however, are not right or wrong and, in my view, they are not susceptible to testing by cross examination in the same way as matters of fact. Whether an opinion is honestly and genuinely held by an expert, and is based on reasoned analysis and argument, or is designed simply to bolster his client's case, is more likely to be apparent in open discussion with a peer than in cross examination. There are several reasons for this. Counsel is likely to: have limited understanding of the technicalities under consideration; want the expert's views to be presented to the tribunal in a manner that best suits the purposes of his own arguments; and want to avoid questioning the expert on matters that may undermine his own argument. These factors are likely to restrict, or colour, the evidence that is

presented.

Hot tubbing

Hot tubbing can provide the tribunal with the opportunity of listening to open discussions of technical matters directly. It may also elicit or elucidate subtle differences in the analysis and reasoning of the experts that are unlikely to be brought out in cross examination. This is likely to assist the tribunal's proper understanding of the technical issues and help avoid the need simply to 'prefer' the evidence of one expert over another or, more accurately, prefer the way in which one expert responds to cross examination than the other.

If cross examination tends to be destructive, or manipulative, of the evidence presented, hot tubbing, on the other hand, should tend to provide the tribunal with a full and neutral understanding of the technical matters at issue.

I suggest also that there is a parallel between listening to open discussion of differing views on technical issues between two experts in the hot tub and the weighing up of the differing legal arguments that the independent legal expert, the tribunal, must go through in reaching a decision on the law.

This is not to suggest that the experts should in any way take on responsibility for answering 'the ultimate question'. That task must still fall to the tribunal which must apply the law not only to the factual evidence but also to the opinion evidence in order to do so. I would strongly suggest, however, that the fullest understanding of all the evidence should provide the firmest basis for a rational judgment.

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