

## Final Impact Assessment: Assessments in Lieu of Tests

### Summary

1. In her independent review of building regulations and fire safety interim report, Dame Judith Hackitt made wide ranging recommendations for strengthening the regulation of building safety and construction products. The Government is committed to a comprehensive programme to reform the system and the industry. However, this will take time, so the Government is acting now within the current system to address safety concerns. This includes tightening the circumstances in which assessments in lieu of tests (“AILOTs”, sometimes referred to as ‘desk top studies’) can be undertaken and the way in which they are undertaken.
2. Dame Judith Hackitt recommended that Government should restrict the uses of AILOTs. The Government committed to implementing the recommendation through amendments to Approved Document B (fire safety)<sup>1</sup>. The restrictions will require that AILOTs are used appropriately and are carried out by competent individuals.
3. The Government has decided to go further than Dame Judith recommended and has implemented a ban on the use of combustible materials in the external walls of all new buildings which have a top storey more than 18 metres above ground level and which contain flats as well as new hospitals, residential care premises, student accommodation and dormitories in boarding schools over 18 metres. This will mean that AILOTs for external wall systems for all buildings in scope of the ban will not be allowed.
4. The Government has also made clear in advice issued in the summer that assessments should not be used to justify the performance of Glass Reinforced Plastic (GRP) composite material fire doors where standards clearly say that tests should be carried out. Since then, the industry has removed from the market doors which it could not demonstrate met the required fire test standards. The industry has committed to only reintroducing GRP composite fire doors to the market where full test evidence is available. This has had an impact on the number of AILOTS undertaken for GRP composite fire doors.
5. The Government consulted on the proposed amendments to Approved Document B to restrict the use of AILOTs from 11 April 2018 to 25 May 2018. A total of 235 responses were received from a range of individuals and bodies such as manufacturers and local authorities. Of the 188 respondents to the recommendation in Dame Judith Hackitt’s interim report to “restrict the use of

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<sup>1</sup> Approved Document B (fire safety) is the guidance on how to meet the Building Regulations in relation to fire safety, with guidance including (but not limited to) access for emergency services and means of escape.

desktop studies to ensure that they are only used where appropriate and with sufficient, relevant test evidence by people with suitable competence”<sup>2</sup>, 83% of the respondents agreed.

6. The consultation also proposed an alternative approach, which would go further and prohibit the use of assessments either for all fire test classifications or specifically for those relating to the BS 8414 full scale cladding test. However, the ban on the use of combustible materials in external wall systems will mean that AILOTs based on BS 8414 test data for the fire performance of cladding systems will also be banned by default for those buildings covered by the ban. ***The consultation responses also showed that there is some support for the use of AILOTs in appropriate circumstances, provided that they are under undertaken correctly by competent persons.***
7. As such, the option of a total ban on assessments is not being taken forward. The number of AILOTs which would otherwise have been undertaken will be reduced as a consequence of the ban on the use of combustible materials on external wall systems for relevant buildings and the action taken on fire doors. As noted above feedback from industry suggests that the number of AILOTs for fire doors has reduced.
8. It will still be possible to use BS 8414 test data for cladding systems used on types of high rise building which are not covered by the ban e.g. office buildings over 18m. However, any extended application of test results will need to follow the new British Standard which is being introduced.
9. We have considered two options:

**Option One** is to do nothing, and not issue amendments to Approved Document B to restrict the use of AILOTs. AILOTs are well established and can provide valuable information about products. However, some assessments have been found not to be sufficiently rigorous and/or to not sufficiently reference appropriate test data.

**Option Two** is to limit the use of AILOTs where there is evidence that assessments are being misused or where there are concerns around public safety. Assessments will have to be carried out by competent individuals and reference appropriate test data.
10. For both of these options we have used a baseline counterfactual which takes account the reduction in AILOTs arising from the ban on the use of combustible

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<sup>2</sup> See Q3, consultation paper “Approved Document B (fire safety): amendments to statutory guidance on assessments in lieu of tests”, April 2018, Ministry for Housing, Communities and Local Government.

materials in the external wall systems of certain high-rise buildings and the action taken on fire doors.

11. The main cost to business will arise as a result of the following factors.

- AILOTs undertaken under Option Two will be more expensive due to more stringent requirements.
- Transition costs associated with Option Two, as industry will take time to become familiar with the policy changes.

We have considered these costs separately in respect of cladding systems and other non-cladding construction products.

12. For cladding, the total present value cost over a 10-year period of implementing policy Option Two, compared to Option One, is £1.19 million. This translates to an Equivalent Annual Net Direct Cost of £0.14m. This is principally due to transition costs. It is anticipated that there is also a small increase in costs in undertaking assessments under Option Two.

13. For non-cladding, the total present value cost over a 10-year period of implementing policy Option Two, compared to Option One, is £23.9 million. This translates to an Equivalent Annual Net Direct Cost of £2.78 million. This is due to more fire tests being produced, and the higher costs of producing assessments under Option Two.

14. The total impact of the policy (cladding and non-cladding) has a net present value of £25.1 million, and an estimated equivalent annual net cost of £2.92 million.

15. The low and high estimates of the total impact of the policy gives a range of £20.1 million to £30.1 million for the net present value, and a range of £2.3 to £3.5 million for the estimated equivalent annual net cost.

**Problem under consideration:**

16. The principle of carrying out AILOTs is well established and often a necessary part of the system for classifying the fire performance of construction products and systems. Assessments may be the only way of classifying in some circumstances and they also provide a practical and proportionate approach where minor changes are made to a construction product or system. Table 2 shows the number of fire tests and assessments currently undertaken each year.

17. There are some cases where it is not possible to test a fire door and assessments are necessary, for example if the door size is too large for the test furnace. Also, undertaking a test for every combination of minor variation to a fire door would be disproportionate and, in most cases, unnecessary.
18. However, there have been concerns with the current approach to the use of AILOTs for cladding systems. Some AILOTs for cladding systems have been criticised for their lack of supporting test data. An AILOT should be an extrapolation or interpolation of relevant, existing test data, not an estimate. Questions have also been raised about the competence of some of the assessment authors.
19. The independent review of Building Regulations and fire safety undertaken by Dame Judith Hackitt considered these concerns and recommended:

“The government should significantly restrict the use of desktop studies to approve changes to cladding and other systems to ensure that they are only used where appropriate and with sufficient, relevant test evidence. Those undertaking desktop studies must be able to demonstrate suitable competence. The industry should ensure that their use of desktop studies is responsible and in line with this aim.” (Paragraph 1.94)
20. Since the Grenfell Tower fire, the Government has moved to ban the use of combustible materials in external wall systems of all new buildings which have a top storey more than 18 metres above ground level and which contain flats as well as new hospitals, residential care premises, student accommodation and dormitories in boarding schools over 18 metres. Large scale BS 8414 tests will no longer be a permitted route for these buildings types to demonstrate compliance with the Building Regulations, and AILOTs will not be allowed in these cases. Therefore, the restrictions of assessments in lieu of BS 8414 tests (which cover combustible materials in external wall systems) will only be relevant to other building types which are not subject to the ban (see Table 1).

### **Policy Objectives / Options**

21. The policy objective is to restrict the use of AILOTs, to ensure they are only undertaken appropriately by competent individuals and can be adequately checked.

#### **Option One: Do nothing**

22. Since the Grenfell Tower fire, it has been reported that AILOTs have become less common.

23. The concern over the use of AILOTs for cladding systems on residential high-rise buildings over 18m will no longer be a concern following the introduction of the ban of the use of combustible materials.
24. Carrying out a fire test is more costly than carrying out an AILOT. Without restrictions on AILOTs, assessments will remain a popular route to compliance and industry may revert to carrying out assessments without the necessary safeguards, resulting in poor quality and inaccurate assessments, increasing the risk to public safety.

### **Option Two: Amend guidance in Approved Document B**

25. Appendix A of Approved Document B provides the basis for how the fire classification of products and systems should be carried out and applied in demonstrating compliance with the fire safety requirements of Building Regulations.
26. We propose to update Appendix A of Approved Document B (fire safety) to restrict assessments. This will ensure that only those with sufficient knowledge and expertise undertake assessments, and that there is sufficient transparency for the assessments to be adequately reviewed. The proposed changes to the guidance will:
- Restrict who can undertake assessments by expecting that only organisations listed as Notified Bodies under relevant EU legislation (the Construction Products Regulations) or those with UKAS accreditation for the relevant test standard may make assessments.
  - Control how they are undertaken by requiring that where an assessment based on the extended application of test results is permitted, a standard for extended application of test evidence should be followed, or if there is no standard, the principles outlined in BS EN 15725:2010 should be followed.
  - Ensures transparency by requiring the test evidence which forms the basis for the assessment to be referenced. Companies will be required to undertake AILOTs to a higher standard in the limited circumstances where they are allowed.
  - For those buildings outside the scope of the ban on combustible wall materials, require any assessments in relation to the BS 8414 fire resistance standard to be carried out in accordance with a more stringent new British Standard.
27. These proposed changes are designed to ensure that the concerns raised in Dame Judith Hackitt's interim report are addressed in a proportionate way.

28. Whilst combustible materials in external wall systems have been banned for all new buildings which have a top storey more than 18 metres above ground level and which contain flats as well as new hospitals, residential care premises, student accommodation and dormitories in boarding schools over 18 metres, AILOTs will remain available in other situations as well as for other products or systems.
29. The Government has commissioned the British Standards Institution (BSI) to draft a standard for the extended application of BS 8414 results. This will provide detailed rules for assessments relating to cladding systems, in support of the above requirements. Once the new British Standard is introduced, following it would be the expectation for building types over 18m which are not within the scope of the ban and where BS 8414 tests have been undertaken. This change has not been factored into this cost analysis as the design of the new standard remains work in progress. However, together with the separate recent guidance that assessments should not be used for composite fire doors, these changes are likely to reduce the use of assessments and increase tests further. The ban on combustible materials in external wall systems (see separate impact assessment) will ban both BS8414 tests and assessments completely for buildings in scope of the ban.

### **Monetised and non-monetised costs and benefits**

#### **Option One: Do nothing**

30. There is evidence that the industry has become more risk averse since the Grenfell Tower fire. However, there is a risk that over time this risk aversion will fade and the industry may revert to using AILOTs without the necessary safeguards.
31. The costs of a fire test vary significantly depending on the type of test. However, in most cases it is cheaper to carry out an assessment than a fire test. An average (non-cladding) fire resistance test is estimated to cost £2,500, whereas an equivalent fire resistance test assessment is estimated to cost £500.
32. There is the cost of the increased risk to public safety from the reduced safeguarding over time as AILOTs continue to be used in a less restricted way.
33. The estimated Present Value Cost of all affected cladding projects over the appraisal period (the next 10 years), applying the 3.5% Green Book discount rate, is £8.03 million. From this, the equivalent annual direct cost over the 10-year period is £0.93million.
34. For non-cladding projects, including fire doors, the estimated Present Value Cost over the next 10 years, applying the 3.5% Green Book discount rate, is £178.7 million. The equivalent annual net direct cost over the 10-year period is £20.76 million.

## Option Two: Amend Approved Document B

35. The cost to business will derive from the increased cost of a more rigorous testing regime. Under the proposed changes, a (non-cladding) assessment is anticipated to increase in price by approximately 10%. The cost increase derives from three factors:
- A proportion of assessments are currently being undertaken in-house by the manufacturer; it is anticipated that there will be an additional cost, as these are now being undertaken externally
  - In addition, additional competency requirements placed on those who can undertake assessments are likely to result in higher assessment costs
  - Additional requirements on data needed to underpin an assessment are also likely to result in higher assessment costs
36. Most reaction to fire tests are not much more expensive than a written assessment. Because of the low-cost saving, assessments in lieu of reaction to fire tests are more uncommon. Therefore, these assessments have not been included in this impact assessment.
37. The estimated Present Value Cost of all affected cladding projects over the appraisal period (the next 10 years), applying the 3.5% Green Book discount rate, including one-off transition costs, is £9.2 million. From this, the equivalent annual direct cost over the 10-year period is £1.07 million.
38. For non-cladding projects, including fire doors, the estimated Present Value Cost for the next 10 years, applying the 3.5% Green Book discount rate, including one-off transition costs is £202.6 million. The equivalent annual direct cost to business over the 10-year period is £23.5 million.
39. Given the above stated absolute cost of this policy option for both cladding and non-cladding products, the net impact of this policy compared to Option One: Do Nothing is £25.1 million over the ten-year period, and an estimated equivalent annual net cost of £2.9 million (see Table 3 below). This includes the transition cost, which has a present value cost of £1.58 million, and an equivalent annual cost of £0.18 million.
40. The low and high estimates of the total impact of the policy gives a range of £20.1 million to £30.1 million for the present value cost, and a range of £2.3 million to £3.5 million for the estimated equivalent annual cost.

## **Benefits**

41. Benefits have not been monetised for this assessment.
42. It is expected that more tests will be undertaken due to the more rigorous guidance on assessments, ensuring that assessments are only used where appropriate. Feedback from industry suggests that this has been the case for fire doors, for example. More tests will increase the evidence base for future assessments.
43. The Government's Building Safety Programme has identified high rise residential buildings which have been discovered to have combustible aluminium composite material cladding panels which did not follow the provisions of Building Regulations guidance. As noted above, there have been concerns that assessments have not been rigorous enough or have not referenced appropriate test data. The purpose of the ban is to put beyond doubt exactly what materials can and cannot be used. This will make compliance easier to identify for designers, installers and building control bodies.
44. More rigorous requirements for AILOTs and enhanced standards will raise the quality of assessments. This will ensure that they are used appropriately and that there will be more rigorous compliance with Building Regulations' requirements. Tighter rules will also provide more assurance to building control bodies checking for compliance.
45. Better compliance will ensure that fire safety risks are better identified and managed by developers, so reducing risks. We have not monetised these benefits.
46. A clearer set of requirements for AILOTs and raised quality standards should result in reduced rejections of building plans by building control bodies and the consequential costs of correcting mistakes and abortive work for those undertaking the assessments.
47. The referencing of test data within AILOT reports will also mean that those checking assessments will benefit from more transparent information.

## **Conclusion**

48. This impact assessment has examined the costs and benefits of restricting the uses of AILOTs. Taking into account the action which the Government has taken particularly to ban the use of combustible materials in external wall

systems of certain high-rise buildings, the number of AILOTs undertaken overall is expected to reduce. The costs of undertaking an AILOT in the cases where they can continue to be used are estimated to be higher, given the tighter requirements which will apply. These extra costs will be countered by expected benefits of improved compliance arising from better quality, more rigorous and transparent assessments.

Table 1

Building Type	No Marking	Combustible (cladding)	AILOTs (general)
Residential (dwellings)	Flats	Ban	Restrict*
Residential (institutional)	Hospitals	Ban	Restrict*
	Care home	Ban	Restrict*
	Student halls of residence	Ban	Restrict*
	Dormitories in schools	Ban	Restrict*
	Hotels	Restrict	Restrict
Offices		Restrict	Restrict
Shop/ commercial		Restrict	Restrict
Schools		Restrict	Restrict
Assembly and recreation		Restrict	Restrict
Industrial		Restrict	Restrict
Storage (car parks / warehouses)		Restrict	Restrict

\* ban by default for external wall system only.

Table 2

Products	Number of fire tests p.a.	Number of AILOTs p.a.	Number of products that cannot be assessed using fire test
	ESTIMATE	ESTIMATE	ESTIMATE
doors and shutter assemblies	250	2,500	50
intumescent door seals	250	1,000	n/a

penetration sealing systems / linear gap seals	250	1,000	n/a
structural steel protection	250	1,000	n/a
glazed screens	200	750	n/a
ventilation ducts	100	500	n/a
walls and partitions	100	250	
suspended ceilings	100	200	n/a

Source: Adroit Economics Consortium

*Table 3 : Cost Summary*

	<b>Cladding</b>		<b>Non-cladding</b>	
	<b>Present Value</b>	<b>Equivalent Annual Cost</b>	<b>Present Value</b>	<b>Equivalent Annual Cost</b>
<b>Option One</b>	£8.0m	£0.93m	£178.7m	£20.8m
<b>Option Two</b>	£9.2m	£1.07m	£202.6m	£23.5m
<b>Cladding and non-cladding</b>				
	<b>Present Value</b>	<b>Equivalent Annual Cost</b>		
<b>Option 1</b>	£186.7m	£21.7m		
<b>Option 2<sup>3</sup></b>	£211.8m	£24.6m		
<b>Policy change</b>	£25.1m	£2.9m		

<sup>3</sup> Including transition costs