Ministry of Housing, Communities & Local Government

Amendments to statutory guidance on assessments in lieu of test in Approved Document B (Fire Safety)

A consultation paper

April 2018
Ministry of Housing, Communities and Local Government

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April 2018

ISBN: 978-1-4098-5236-0

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Scope of the consultation

Topic of this consultation:	This consultation seeks views on proposed amendments to the guidance on assessments in lieu of a test (desktop studies) as set out in Approved Document B. The proposal is in line with recommendations in Dame Judith Hackitt's Interim Report on Building Regulations and Fire Safety.
Scope of this consultation:	Building Regulations
Geographical scope:	These proposals relate to England only.
Impact assessment:	The consultation document includes a summary of the impact assessment for implementing these recommendations. The impact assessment is being published alongside this consultation document (Annex B).

Basic Information

Body/bodies responsible for the consultation:	Ministry of Housing Communities and Local Government (MHCLG)
Duration:	This consultation will last for seven weeks from 11 April 2018 until 25 May 2018
Enquiries:	For any enquiries about the consultation please contact The MHCLG Building Regulations team by emailing: buildingregsteam@communities.gsi.gov.uk
How to respond:	You may respond by completing an online survey at: https://www.surveymonkey.co.uk/r/S9V7BMQ Alternatively you can email your response to the questions in this consultation to: buildingregsteam@communities.gsi.gov.uk Written responses should be sent to: Assessment in Lieu of Test Consultation, Building Safety and Energy Performance Division 2 SW, Fry Building, 2 Marsham Street, London, SW1P 4DF When you reply, it would be useful if you confirm whether you are replying as an individual or submitting an official response on behalf of an organisation and include:

	- your name, - your position (if applicable), - the name of organisation (if applicable), - an address (including post code), - an email address, and - a contact telephone number

Introduction

1. One of the recommendations of Dame Judith Hackitt's Interim Report on the Independent Review of Building Regulations and Fire Safety[1] was that:

   "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)

2. In response, the Secretary of State made the following commitment in his statement to Parliament on 18 December 2017:

   "On desktop studies, we will revise the approved documents on fire safety and commission work to produce a new British standard on when and how such assessments can be used."

3. The principle of carrying out assessments in lieu of a fire test – desktop studies by another name – is an established part of the system for classifying the fire performance of construction products and systems. This is reflected in the current Approved Document in paragraph 1b of appendix A. This consultation paper sets out proposed amendments to that guidance to ensure that assessments are carried out correctly, in line with Dame Judith's recommendation.

4. The consultation paper is also seeking views on whether the Government should go further and prohibit the use of assessments in lieu of tests either for all fire test classifications or for fire test classifications relating to the BS 8414 full-scale cladding test.

5. The Government response to this consultation will also take into account findings and recommendations made by Dame Judith Hackitt's final report on the Building Regulations and Fire Safety system, which is due to be published in the Spring.

[1] https://www.gov.uk/government/publications/independent-review-of-building-regulations-and-fire-safety-interim-report

Background

6. The Building Regulations 2010 require that external walls on all buildings adequately resist fire spread. Statutory guidance in Approved Document B sets out two ways that external walls can meet the Building Regulations requirement for resisting fire spread:

   - The first is for each individual component of the wall (insulation, filler, etc) to meet the required standard for combustibility.
   - The second is to ensure that all the combined elements of a wall, when tested as a whole installed system, adequately resist the spread of fire to meet a set standard.

   This guidance should be read in conjunction with Appendix A of the Approved Document which outlines how tests should be carried out for the performance of materials, products and structures and establishes the principle of assessments in lieu of tests.

7. The principle of carrying out an assessment in lieu of test is a well established part of the system for classifying the fire performance of construction products and systems.

8. In many cases there are standards which provide rules for assessments in relation to specific tests and products (known as ‘standards for extended application’). For instance, BS EN 15254-5 provides rules for the extended application of results from fire resistance tests on non-loadbearing walls of sandwich panel construction.

9. The term “desktop study” has commonly been used to describe an assessment in lieu of test, with respect to external wall insulation and cladding systems. For technical clarity and consistency, the term “assessment in lieu of test” is used throughout this consultation document.

10. Dame Judith Hackitt’s Interim Report has indicated concerns with the current approach to the use of assessments in lieu of tests for cladding systems. Some assessments in lieu of tests of cladding systems have been criticised for their lack of supporting test data. An assessment in lieu of test should be an extrapolation or interpolation of relevant, existing test data, not an estimate. Questions have also been raised in Dame Judith’s report about the competence of some of the assessment authors.

11. Appendix A of both volumes of Approved Document B (Fire Safety) 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.

12. In order to implement Dame Judith's recommendation, the Government is proposing to issue amendments to Appendix A which clarify the existing text and creates new requirements for assessments in lieu of fire tests.

13. The draft change will provide guidance on use of all assessments in lieu of tests to meet Part B requirements (which cover fire safety), including cladding and external insulation. An alternative approach would be to 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. Before making that decision we need to better understand the impacts of these options.

Proposed approach to implementing Dame Judith's interim recommendation

14. The proposed requirement is that:

    - Where a relevant standard for extended application exists this should be followed.

    - Where there is no standard for extended application then the principles of BS EN 15725:2010 (A European Standard on how to carry out extended application reports on the fire performance of construction products and building elements) should be followed.

15. Following the relevant standards or BS EN 15725:2010 will mean that the test data used to support an extended application assessment must be referenced in the assessment report. This ensures transparency and allows the report to be scrutinised.

16. Additionally, the Government has commissioned the British Standards Institution (BSI) to draft a standard for the extended application of BS8414 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 for cladding systems, following it would be the expectation.

17. Assessments should be carried out by bodies that have experience of the test in question. The proposed new text of Approved Document B states that organisations listed as "notified bodies" in accordance with the European construction products regulation or laboratories accredited by the United Kingdom Accreditation Service (UKAS) for the relevant test standard can be assumed to have the necessary expertise.

18. Since the Grenfell Tower fire, it has been reported that use of assessments in lieu of tests for cladding systems carried out since the Grenfell Tower fire are on the whole more robust. However, there is a risk that, over time, industry may revert to

using assessments in lieu of tests without the necessary safeguards. The purpose of the proposed changes is to ensure high standards throughout and that these are maintained over time.

19. We consider that the combination of the amendment to Approved Document B and the introduction of the new standard for extended application of BS8414 results which we expect, once introduced, would be the standard industry should follow, provide an effective response to Dame Judith Hackitt's Interim Report's recommendation.

20. The proposed text for inclusion in Approved Document B is in Annex A of this consultation document.

Impact assessment

21. The impact assessment is at Annex B to this consultation. It considers the cost to business and civil society organisations resulting from making the proposed change to Approved Document B.

22. The impact assessment compares the cost of two scenarios. The first scenario (referred to as Option One) is to do nothing and not issue amendments to Approved Document B to restrict the use of assessments in lieu of tests. The second scenario (referred to as Option Two) is to issue amendments to Appendix A of Approved Document B and implement the changes which are being consulted on. Further alternatives could include prohibiting assessments either for all fire test classifications or specifically for those relating to the BS 8414 full scale cladding test. The consultation invites views on these and other alternatives.

23. From this analysis, we believe the main additional costs to business from our proposed change derive from three factors:

    a. An increase in the cost of undertaking an assessment in lieu of test under Option Two reflecting the more exacting standards (circa 25% increase per test)
    b. More assessments in lieu of tests being commissioned under Option Two than Option One, due to greater confidence and clarity in the use of assessments in lieu of tests by industry, and a corresponding reduction in use of the BR 135 Classification Report based on a successful BS8414 test route. The cost of undertaking an assessment in lieu of test is estimated on average to be circa three times that of obtaining a BR 135 Classification Report for an existing successful BS8414 test
    c. Transition costs from the current position to Option Two, deriving from the time taken by industry to become familiar with the policy change.

24. The total present value cost to business over a 10-year period of implementing the proposed change to Approved Document B, compared to doing nothing, is £8.0m. This translates to an Equivalent Annual Net Direct Cost to Business (EANDCB) of **£0.93m**.

25. Further analysis on costs and benefits of this change, including sensitivity analysis, will be undertaken for a final post-consultation assessment.

Next Steps

Responses to this consultation will be analysed in May and June 2018 and a Government Response will follow.

Questions

Respondent Details

Question 1	**Respondent details**
Name	
Position (if applicable)	
Organisation (if applicable)	
Address (including postcode)	
Email address	
Telephone number	
Please state whether you are responding on behalf of yourself or the organisation stated above	

Question 2	**Select one**
Please indicate whether you are applying to this consultation as:	
• Builder / Developer	
• Designer / Engineer /Surveyor	
• Local Authority	
• Building Control Approved Inspector	
• Architect	
• Manufacturer	
• Insurer	
• Construction professional	
• Fire and Rescue Authority representative	
• Property Manager / Housing Association / Landlord	
• Landlord representative organisation	
• Building Occupier	
• Tenant representative organisation	
• Other interested party (please specify)	

Question 3	**Yes/No/Don't Know**
Do you agree with the recommendation in Dame Judith Hackitt's interim report to restrict the use of desktop studies to ensure that they are only used where appropriate and with sufficient, relevant test evidence by people with suitable competence. If no, please provide reasons and suggest an alternative approach.	

Question 4	Yes/No/Don't Know
Do you agree with the proposed amendment to the text on how to undertake an assessment in lieu of test as outlined in Annex A? If no, please provide reasons and suggest alternative text.	

Question 5	Yes/No/Don't Know
Do you agree with the proposed amendment to the text on who is permitted to undertake an assessment in lieu of test as outlined in Annex A? If no, please provide reasons and suggest alternative text.	

Question 6	Yes/No/Don't Know
Do you agree with the proposed amendment to the text on the circumstances under which an assessment in lieu of test may be carried out, as outlined in Annex A? If no, please provide reasons and suggest alternative text.	

Question 7	Yes/No/Don't Know
Do you agree with the impact assessment? If no, please provide evidence.	

Question 8	Yes/No/Don't Know
The impact assessment is principally focused on external wall construction. Do you consider it will impact any other building features? If yes, please specify.	

Question 9	Yes/No/Don’t Know
Do you think that making this change will achieve the desired outcome expressed in Dame Judith Hackitt’s interim recommendation? If not, please explain why and suggest alternatives.	

Question 10	Yes/no/don’t know
Do you consider that the use of assessments in lieu of fire tests should be prohibited for all construction products? Please provide an explanation of your answer.	

Question 11	Yes/no/don’t know
Do you consider that the use of assessments in lieu of fire tests should be prohibited for wall systems tested to BS 8414? Please provide an explanation of your answer.	

Question 12	Free text
Do you have further comments?	

Annex A

Replace paragraphs 1 and 2 of Approved Document B Appendix A (both volumes) with:

"A1 Much of the guidance in this document is given in terms of performance classifications in relation to British or European Standards. In such cases the performance of products and systems should be demonstrated using one of the following methods:

a. be in accordance with a specification or design that has been shown by specific test to be capable of meeting that performance classification;

b. have been assessed in lieu of a specific test from relevant test evidence as being capable of meeting that performance classification; or

c. have been designed by using relevant design standards, as meeting that performance classification.

A2 Any test evidence used to demonstrate the fire performance classification of a product or system should be carefully checked to ensure that it is applicable to the intended use. Small differences in detail, such as fixing method, joints, dimensions, the introduction of insulation materials and air gaps (ventilated or not), can significantly affect the performance.

A3 Where it is proposed to assess the classification of a product or system in lieu of carrying out a specific test (as in A1b. above) this should be done in accordance with the relevant standard for extended application for the test in question.

For performance classifications where there is no specific standard for extended application, assessment reports should be produced in accordance with the principles of BS EN 15725:2010 and should include details of the test evidence that has been used to support the assessment.

A4 Tests and assessments should be carried out by organisations with the necessary expertise. Organisations listed as "notified bodies" in accordance with the European construction products regulation or laboratories accredited by UKAS for the relevant test standard can be assumed to have the necessary expertise.

Note Standard fire tests do not directly measure fire hazard. They measure or assess the response of a material or system to exposure to one or more aspects of fire conditions. Performance in fire tests is only one of a number of factors that should be taken into account."

Annex B

Impact assessment for consultation - assessments in lieu of tests

Summary

1. The Government has committed to implementing Dame Judith Hackitt's recommendation to amend Approved Document B to restrict the use of assessments in lieu of tests (also referred to as desktop studies).

2. The principle of carrying out written assessments in lieu of tests is well established and can provide a practical and proportionate approach to classifying minor changes to fire performance in some circumstances. Whilst industry is reported to be undertaking fewer assessments in lieu of tests, there is still a need to ensure that where assessments in lieu of tests are taking place, they are carried out by a competent person and in a way that is compliant. This will provide re-assurance to residents, building owners and industry that assessments in lieu of tests, when undertaken properly, are an appropriate route to compliance, thus ensuring that industry has a full range of routes to compliance.

3. We have considered two options.

    - **Option One** is to do nothing, and not issue amendments to Approved Document B to restrict the use of assessments in lieu of tests. But some assessments have been criticised for lacking references to appropriate test data and this option would fail to address this.
    - **Option Two** is to issue amendments to Appendix A of Approved Document B to which clarifies the text (but does not change its meaning) and creates new rules for assessments in lieu of fire tests.

4. We think that new construction, retrofit and replacement of cladding in high-rise residential, student and hotel accommodation will be most affected by Option 2. The main additional costs to business derive from three factors:

    - An increase in the cost of undertaking an assessment in lieu of test under Option Two reflecting the more stringent requirements (circa 25% increase).
    - More assessments in lieu of tests being commissioned under Option Two than Option One, due to greater confidence and clarity in the use of assessments in lieu of tests by industry, and a corresponding reduction in use of the BR 135 Classification Report based on a successful BS8414 test route. The cost of undertaking an assessment in lieu of test is estimated on average to be circa three times that of obtaining a BR 135 Classification Report for an existing successful BS8414 test.

- Transition costs from the current position to Option Two, deriving from the time taken by industry to become familiar with the policy change.

5. The total present value cost to business over a 10-year period of implementing Option Two, compared to Option One, is £8.0m. This translates to an Equivalent Annual Net Direct Cost to Business (EANDCB) of **£0.93m**.

6. Further analysis on costs and benefits of this change, including sensitivity analysis, will be undertaken for a final post-consultation impact assessment.

Problem under consideration

7. The principle of carrying out assessments in lieu of a fire test is well established and often a necessary part of the system for classifying the fire performance of construction products and systems. Such 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.

8. In many cases there are standards which provide rules for assessments in relation to specific tests and products (known as standards for extended application). For instance, BS EN 15254-5 provides rules for the extended application of results from fire resistance tests on non-loadbearing sandwich panel construction.

9. Since the fire at Grenfell Tower, some assessments of cladding systems, often described as "desktop studies" have been criticised for their lack of reference to supporting BS8414 test data.

10. One of the recommendations of Dame Judith Hackitt's Interim Report[2] on the Independent Review of Building Regulations and Fire Safety is that:

"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." (pg. 24)

Policy Objective / Options

11. The Policy objective is to tighten up the use of assessments in lieu of tests and ensure that they are only used where appropriate, with sufficient, relevant test evidence and that they are undertaken by competent staff within appropriately certified organisations.

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2 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/668831/Independent_Review_of_Building_Regulations_and_Fire_Safety_web_accessible.pdf

Option One - Do nothing

12. Since the Grenfell Tower fire, it has been reported that use of assessments in lieu of tests for cladding systems is less common place.

13. The increasing number of full fire tests is opening up an additional, emerging route to compliance with the Building Regulations, which is to install a façade construction which is exactly the same as a façade construction that has already been tested to BS8414. The results of these tests are available in the BR 135 Classification Report that can be acquired from the relevant test house if the organisation which paid for the test will release the report.

14. The full fire test route is more costly and time consuming than assessments in lieu of tests and the BR 135 Classification Report route will not be appropriate in all situations, so there will continue to be demand for assessments in lieu of tests. Without tightening up the assessment in lieu of test route, there is a real risk that, over time, industry may revert to using assessments in lieu of tests without the necessary safeguards, increasing the risk to public safety.

Option Two – Amend Approved Document B

15. 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.

16. We propose to issue amendments to Appendix A of Approved Document B which (a) clarify the text (but do not change its meaning) and (b) which creates new rules for assessments in lieu of fire tests. The new rules will be that;
    - Where a standard for extended application exists, this should be followed.
    - Where there is no standard for extended application, the principles of BS EN 15725:2010 should be followed.

17. If Government issued these amendments, it would mean that the fire test data used to support an extended application assessment in lieu of test would need to be referenced in the assessment report. This would increase transparency and allow the report to be scrutinised.

18. Separately, we have asked BSI to draft a standard for the extended application of BS8414 results. This will provide detailed rules for assessments specifically relating to cladding systems.

19. Moreover, we propose that assessments in lieu of tests should be carried out by bodies that have experience of the test in question. The proposed text will make it clear that laboratories accredited to carry out the test will have that experience.

20. These proposed changes are designed to ensure that the concerns raised in Dame Judith Hackitt's Interim Report are addressed in a proportionate way.

Monetised and non-monetised costs and benefits of each option

Option One: Do Nothing

21. This option assumes that ongoing changes will occur in industry practice over time if we do nothing and do not change guidance covering assessments in lieu of tests. While there is evidence that industry has become more risk averse since the Grenfell Tower fire, there is a risk that, over time, industry may revert to using assessments in lieu of tests without the necessary safeguards.

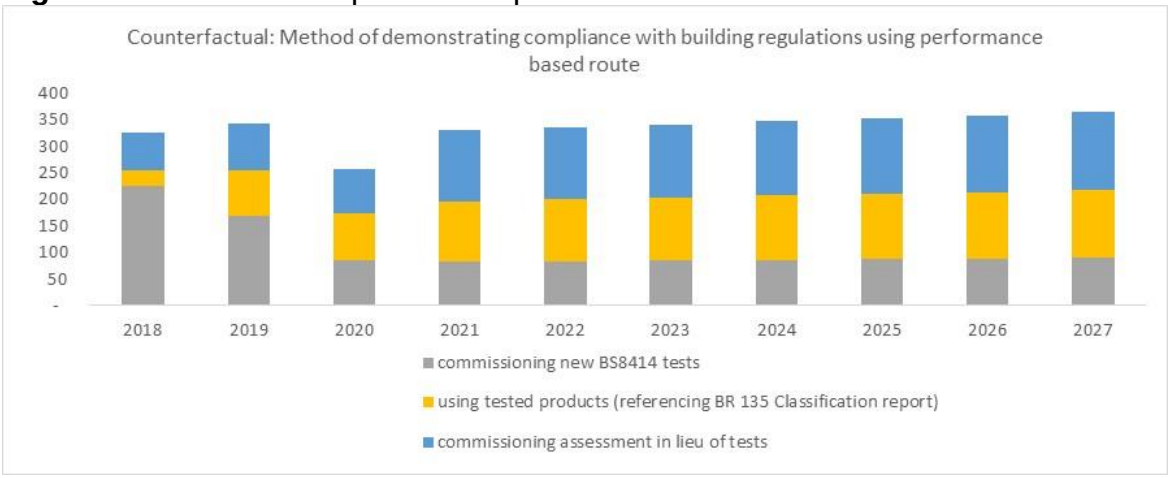
22. Analysis prepared for the Ministry by consultants the Adroit Economics Consortium (Adroit Economics, PRP, RLF, Ramboll and Quod) has identified significant changes to industry practice since the Grenfell Tower fire. The focus for this analysis has been on the impact for cladding systems, where the main concerns about use of assessments in lieu of tests has arisen for residential buildings and hotels both over 18m.

23. There are four identified routes to compliance with Part B4 of the Building Regulations in relation to facades. These are:
    - The linear route;
    - The fire safety engineering route;
    - Undertaking a full BS8414 fire test (this also includes a BR 135 Classification Report); and
    - An assessment in lieu of test.

24. Three of these routes involve specific tests/techniques while the Linear Route involves using material for all elements of the façade which are classified as being of limited combustibility or better performance. Further details of these routes are given in Figure B1 in Annex i.

25. Figure 1 below shows how we assume the use of different routes to compliance would change over the next 10 years if we did nothing to existing guidance.

Figure 1: Routes to compliance – Option One – residential and hotels



(Analysis by the Adroit Economics Consortium)

26. There is expected to be a significant increase in BS8414 fire tests for the two years following the Grenfell Tower fire. Figure 1 shows that from 2020, there is a dropping off in the number of BS8414 tests that is parallel with an increase in developers and contractors using tested products and façade constructions which are identical in every way to that in the BR 135 Classification Report. Note that Figure 1 captures only the number of cladding/insulation projects using the main two routes to compliance that change between Option One and Option Two.

27. While the number of assessments in lieu of tests is reported to have fallen since the Grenfell Tower fire, it is assumed that, in the absence of any policy change, industry would be likely over time to revert to using such assessments under the current guidance.

28. Each of these routes to compliance has an estimated cost associated with it. These vary significantly and drive the main costs of Option One. The unit cost of undertaking these various routes to compliance are presented in Figure B5 in Annex i. All of the costs in this analysis are inclusive of Value Added Tax (VAT).

29. The total cost to industry depends on the estimated number of façade projects that will require certification. The requirement for façade projects will derive from:
    - Retrofit (installing cladding on stock which does not have cladding);
    - Replacement (replacing cladding with new cladding) and;
    - New build (installing facades on a new building).

30. Estimates have been made of the total number of residential and hotel high-rise (over 18 metres in height) cladding projects likely to arise over the appraisal period (the next 10 years) and of the proportion of these likely to be affected by this change. Details are contained in Figure B3 in Annex i.

31. Figure 2 shows the estimated cost of compliance of the total number affected high-rise residential and hotel cladding projects likely to arise in each of years 1, 5, and 10.

32. The estimated Present Value Cost of all affected cladding projects of the appraisal period (the next 10 years), applying the 3.5% Green Book discount rate, is £97.9m. From this, the equivalent annual direct cost to business over the 10-year period is £11.4m (see Figure B4 in Annex i).

Figure 2: Costs of testing/assessment £ - Option One - residential and hotels

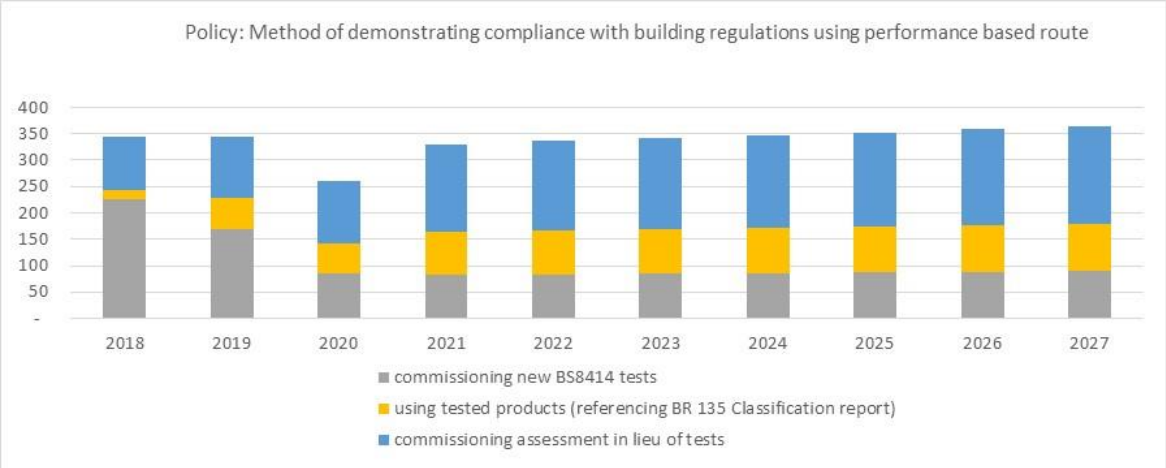
£ million	PV	2018	2022	2027
Gross costs (incl VAT) in each of years 1, 5 and 10	10 years	yr1	yr5	yr10
cost for a BR 135 classification report	2.79	0.10	0.37	0.40
Total Annual Cost to produce BS8414 tests	87.61	18.37	8.17	8.65
Total Annual Cost to prepare assessment in lieu of tests	7.21	0.54	0.93	1.01
cost to clarify assessment approach with building control	0.07	0.008	0.008	0.009
cost to provide additional assessment report if original assessment refused by building control	0.24	0.04	0.02	0.02
Total (Rounded)	**97.93**	**19.05**	**9.50**	**10.10**

(Analysis by the Adroit Economics Consortium)

Option Two: Amend Approved Document B as proposed

33. Of the estimated 5,800 residential and hotel high-rise cladding projects requiring compliance evidence over the appraisal period (the next 10 years), Figure 3 shows the expected choice of compliance routes under Option Two. Note that Figure 3 captures only the number of cladding/insulation projects using the main two routes to compliance that change between Option One and Option Two.
    - The number of full fire tests is anticipated to remain broadly similar to Option One.
    - The principal difference between the options is that the number of affected cladding projects seeking compliance evidence via referencing a BR 135 report from a previous test, is expected to fall by circa 30% and the number of assessments in lieu of tests is expected to increase by a similar proportion by 2027.

Figure 3: Routes to compliance – Option Two – residential and hotels



(Analysis by the Adroit Economics Consortium)

34. To estimate the total cost of compliance under Option Two, the anticipated number of assessments by each route have been multiplied by the anticipated cost of each type of assessment (unit costs are shown in Figure B5 in Annex i). Note that the cost of an assessment in lieu of test is estimated to be roughly 25% more than that

under Option One, because of the more rigorous process proposed under Option Two.

35. Figure 4 shows the results for each of the years 1, 5, and 10.

36. The estimated Present Value Cost of all affected cladding projects of the appraisal period (the next 10 years), applying the 3.5% Green Book discount rate, is £101.1m. From this, the equivalent annual direct cost to business over the 10-year period is £11.7m (see Figure B4 in Annex i).

Figure 4: Costs of testing/assessment – Option Two – residential and hotels

£ million	PV (10 year)	2018	2022	2027
Gross costs (incl VAT) in each of years 1, 5 and 10 (£m)	10 years	yr1	yr5	yr10
cost for a BR 135 classification report	1.94	0.06	0.26	0.28
Total Annual Cost to produce BS8414 tests	87.61	18.37	8.17	8.65
Total Annual Cost to prepare assessment in lieu of tests	11.50	0.94	1.45	1.57
cost to clarify assessment approach with building control	-	-	-	-
cost to provide additional assessment report if original assessment refused by building control	-	-	-	-
ongoing training costs for new assessors	0.016	-	0.002	0.002
Total (Rounded)	**101.06**	**19.38**	**9.88**	**10.51**

(Analysis by the Adroit Economics Consortium)

Net impact of Option Two over Option One

37. It is estimated that the following costs and benefits will arise if we authorise the proposed restriction of the use of assessments in lieu of tests.

Monetised Costs

38. The total net present value cost of Option Two over Option One is £8.0m. This translates to an **Equivalent Annual Net Direct Cost to Business (EANDCB) of £0.93m**. A breakdown is provided in the Figure B4 in Annex i.

39. The additional cost of Option Two derives from the following:
    - It is not anticipated that Option Two will make it more difficult to undertake, or will delay the provision of evidence to prove the compliance of the facades on affected projects. The number of residential and hotel high-rise cladding/insulation projects deriving from retrofit, replacement and new build, requiring certification, is estimated to change only marginally (0.5% increase under Option Two).

    - The proportion of projects using BS8414 tests is not expected to differ over the 10-year period between the two options. The principal difference between the options is that a third more assessments in lieu of test are expected, coupled with a third fewer BR 135 Classification Reports, due to greater confidence and clarity in the use of assessments in lieu of tests by industry under Option Two.

40. The resulting increased cost for Option Two therefore derives from (i) the increased cost of undertaking an assessment in lieu of test under Option Two due to the

increased rigour of the process and (ii) that an assessment in lieu of test under Option Two is estimated to cost approximately three times that of a BR 135 Classification Report for an existing successful BS8414 test.

41. Option Two will also give rise to transition costs deriving from familiarisation and training cost time. This will be partly offset by a removal of the costs associated with Building Control querying reports and requiring revised assessments under Option One.

Non-monetised costs

42. The costs of Option Two for offices and other 'high risk' buildings have not been factored into this analysis at this stage, although they are not anticipated to be as significant as those for residential, student accommodation and hotels. Further work will be undertaken for the final impact assessment.

43. The costs modelled so far only relate to the costs of Option Two related to facades and B4 of Approved Document B. The reason for this is that the changes to Approved Document B are likely to mainly affect the application and use of cladding. There are, however, other parts of AD B other than B4 that may be affected by Option Two.

44. Any potential impacts of Option Two on small firms have not been considered at this stage, but will be considered for the final impact assessment.

Benefits

45. For this stage of analysis, the benefits of the policy were not monetised, although further work will be undertaken for the final impact assessment. Initial consideration of benefits has been presented in the form of a table in Figure B6 and Figure B7 in Annex i that sets out the routes to and causes of compliance. The first order benefits that have been identified are increased levels of compliance and increased potential for product innovation derived from increased design flexibility.

46. While overall the industry has become more risk-averse post Grenfell, there is a small though not insignificant potential risk, under Option One, that towards the end of the appraisal period industry practice may move to solutions which are not consistent with a BS8414 fire test due to inadequate production of assessments in lieu of tests. A benefit of Option Two is that it will mitigate this risk. This will be considered further in the final analysis.

Appraisal Period and Counterfactual

47. Two Options:
    - Option One is the counterfactual and is a 'Do Nothing' scenario, in which the amendment to AD B to restrict the use of assessments in lieu of tests is not introduced.
    - Option Two is expected to come into force in mid 2018. The appraisal period is 10 years.

Risks and Assumptions

48. The costs of the policy option are estimated using a number of assumptions. These assumptions are set out in Figure B2 in Annex i. The key areas where assumptions are made are:
    - forecast stock and rate of new build of residential and hotel buildings with a floor level over 18m
    - number of external cladding/insulation projects that are installed each year and required to demonstrate compliance with B4 of the Building Regulations
    - the proportion of projects being assessed using the different available routes identified to demonstrate compliance
    - the cost of undertaking different assessments
    - Other impacts of undertaking assessments (including training/time costs).

49. The Price Base Year and Present Value Base Year are 2018 and the discount rate of 3.5% is in line with the Green Book guidance.

50. The focus of this analysis is on high rise residential buildings, student accommodation and hotels, all with floor levels over 18 metres, as we believe these building types will be most affected by Option Two. Student accommodation has only been partly assessed (focussing on new build). A full assessment will be undertaken in the final stage impact assessment, which will include existing stock. Assumptions were made about the proportion undertaking different types of tests, including BS8414 and assessments in lieu of tests. These buildings account for the majority of buildings affected by the policy change.

51. There are other building types that were not modelled such as high rise office buildings and non-high rise buildings (such as hospitals and schools). These buildings will be factored into the cost benefit analysis for the final impact assessment where possible, although it is unlikely that these will increase the EANDCB significantly.

52. There is a degree of uncertainty about the estimates and the assumptions. Sensitivity analysis and production of high and low estimates have not been carried out for this stage, but will be revisited for the final impact assessment.

Annex i

Figure B1: Routes to compliance

- **Linear route – requires that 'all elements of the façade construction' are of limited combustibility or better (England & Wales) or non–combustible (Scotland), which, in this context, is defined by being a material that either is 'listed' or has met the required performance criteria after having been subjected to specific small-scale fire tests. Unlike in large scale fire tests, testing is performed on the insulation in isolation from all other materials comprising the façade system.**
- **Fire safety engineering route – the whole building is assessed for spread of fire – undertaken by a fire engineer. The assessment is based upon scientific principles from an integrated or a 'whole building' perspective. Fire Safety Engineering considers the performance of structures, systems, products and materials when exposed to fire, it also includes human behavioural aspects, fire prevention and active and passive fire protection measures e.g. effective means of egress and adequate measures for alarm, detection, control and extinguishment.**
- **Undertake full BS8414 fire test – which comprises building a sample of the complete façade and exposing it to a standardised fire. The results of the test are set out in a Classification Report (BR 135). This test ensures that the complete façade build–up meets the acceptance criteria set out in BR 135 (Fire performance of external thermal insulation for walls of multi-storey buildings), using large scale test data. This route is typically undertaken by manufacturers on all new products or product variants. Only two organisations based in the UK are accredited to undertake the BS8414 test at present. This approach has become more popular since the fire at Grenfell Tower as more systems have been tested.**
- **Assessment in lieu of test – this route will be available if the proposed façade is largely the same as a previously BS8414-trested product, but which includes only a slight variation in design (including different finish colour). An assessment may reference one or several existing BR 135 classification reports.**

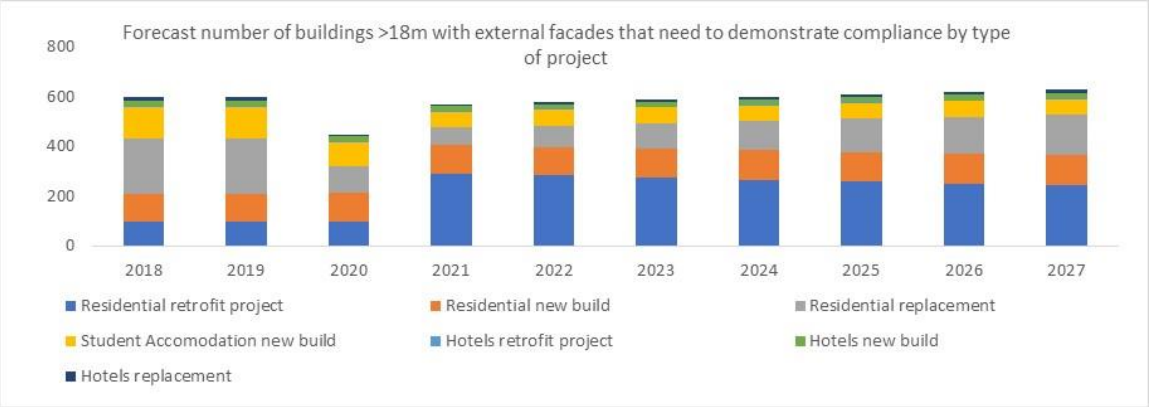
(Analysis by the Adroit Economics Consortium)

Figure B2: Cost benefit logic model – sequence

Estimating the number of buildings with cladding/insulation	▪ **Estimate existing stock and forecast rate of new build high-rise blocks (with a floor level over 18 metres)** ▪ **Estimate proportion with external cladding/insulation** ▪ **Forecast the number of new build high rise blocks**
Estimate the number of new external cladding/ insulation projects likely to derive from these	▪ Retrofit- installing cladding system to existing stock that does not have a cladding system ▪ New build – installing a cladding system to new build projects ▪ Replacement – replacing a cladding system with a new system
Estimate the numbers using each of the four routes to compliance (including the proportion not undertaking any assessment)	▪ % undertaking no assessment ▪ % using materials of limited combustibility/non-combustible ▪ % commissioning new BS8414 tests (producing BR 135 Classification report). Also % using tested façade constructions (referencing BR 135 Classification report) ▪ % commissioning assessment in lieu of tests ▪ % using fire engineered route
Estimate the costs of compliance	▪ Unit costs of reach route to compliance ▪ Total costs based on estimated number using each route
Estimate the transition costs of the policy options	▪ Number of people using the guidance ▪ Time costs of reading the new guidance ▪ Training costs – initial and then, on-going
Net policy cost =	▪ Policy cost (costs of tests + transition costs) ▪ Less Counterfactual (costs of tests)
Net policy benefit =	▪ Increased compliance ▪ Increased scope for product innovation

(Analysis by the Adroit Economics Consortium)

Figure B3: Estimate number of external cladding projects – residential and hotels over 18 metres



(Analysis by the Adroit Economics Consortium)

Figure B4: Results – cost analysis

	Total Costs (10-year NPV) (£m)	Equivalent Annual Net Direct Cost to Business (EANDCB) (£m)
Residential		
Costs		
Option One – Counterfactual	96.35	11.19
Option Two - Policy Option	99.41	11.55
Hotels		
Costs		
Option One – Counterfactual	1.57	0.18
Option Two - Policy Option	1.65	0.19
Residential and hotels		
Costs		
Option One – Counterfactual	97.93	11.38
Option Two - Policy Option	101.06	11.74
Transition costs		
Transition Costs	4.86	0.57
Net Policy costs		
Net Policy Costs (Rounded)	**8.0**	**0.93**

(Analysis by the Adroit Economics Consortium)

Figure B5: Unit Cost and other assumptions used to estimate Test/Assessment costs

		£	£	£	£	
		Year 1	*Year 2*	*Year 3*	*Year 4+*	
Cost Per Assessment	BS8414 test - cost per report (1 facade test)	48,000	48,000	48,000	48,000	
	BS8414 test - cost per report (2 facade test)	96,000	96,000	96,000	96,000	
	BR 135 classification report - cost per report (1 facade)	2,100	2,100	2,100	2,100	
	BR 135 classification report - cost per report (2 facade)	4,200	4,200	4,200	4,200	
	assessment in lieu of test – Option One (1 facade)	6,450	6,450	5,864	5,864	*assume cost falls by 10% after 2 years (short term increase due to demand)*
	assessment in lieu of test – Option One (2 facade)	8,700	8,700	7,909	7,909	*assume cost falls by 10% after 2 years (short term increase due to demand)*
	assessment in lieu of test – Option Two (1 façade)	8,063	8,063	7,330	7,330	*add 25% due to increase in quality due to new BS*
	assessment in lieu of test – Option Two (2 facade)	10,875	10,875	9,886	9,886	*add 25% due to increase in quality due to new BS*
	assessment to support fire engineered route (1 facade)	n/a	n/a	n/a	n/a	
	assessment to support fire engineered route (2 facade)	n/a	n/a	n/a	n/a	
No. Facades assessed per project	proportion of external cladding/insulation projects requiring 2 facade tests	50%	50%	50%	50%	

(Analysis by the Adroit Economics Consortium)

Figure B6: Routes to, and causes of potential non-compliance regarding the 'written assessment in lieu of test route' – Option One

Non-Compliance	Reason
Written assessment or test report not submitted	Officer or Inspector not requested it
Written assessment is not robust enough e.g. References test results which are not comparable constructions	Lack of expertise of the consultant/consultancy producing the written assessment
Written assessment is not robust enough e.g. References test results which are not comparable constructions	Low number of equivalent successful BS8414 tests for comparison purposes
Written assessment does not consider all façade elements where there are multiple facade constructions	Poor instruction to the consultant/consultancy producing the report
Written assessment does not consider all façade elements where there are multiple facade constructions	Lack of expertise of the consultant/consultancy producing the written assessment
Construction(s) considered by the written assessment or test report where not executed on site	Product substitution occurred at some time during the design and construction process

(Analysis by the Adroit Economics Consortium)

Figure B7: Routes to, and causes of potential non-compliance regarding the 'written assessment in lieu of test route' – Option Two

Non-Compliance	Reason
Written assessment or test report not submitted	Officer or Inspector not requested it
Written assessment does not consider all façade elements where there are multiple facade constructions	Poor instruction to the consultant/consultancy producing the report
Written assessment does not consider all façade elements where there are multiple facade constructions	Lack of expertise of the consultant/consultancy producing the written assessment
Construction(s) considered by the written assessment or test report where not executed on site	Product substitution occurred at some time during the design and construction process

(Analysis by the Adroit Economics Consortium)

About this consultation

This consultation document and consultation process have been planned to adhere to the Consultation Principles issued by the Cabinet Office.

Representative groups are asked to give a summary of the people and organisations they represent, and where relevant who else they have consulted in reaching their conclusions when they respond.

Information provided in response to this consultation, including personal information, may be published or disclosed in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004.

If you want the information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Ministry.

The Ministry of Housing, Communities and Local Government will process your personal data in accordance with DPA and in the majority of circumstances this will mean that your personal data will not be disclosed to third parties.
Individual responses will not be acknowledged unless specifically requested.

Your opinions are valuable to us. Thank you for taking the time to read this document and respond.

Are you satisfied that this consultation has followed the Consultation Principles? If not or you have any other observations about how we can improve the process please contact us via the complaints procedure.