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National Fire
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The professional voice of the
UK Fire & Rescue Service

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Banning the use of combustible materials in the external walls of high-rise residential buildings
Building Regulations
Welsh Government
Rhydycar
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Sent via email to: enquiries.brconstruction@gov.wales

7 September 2018

To the Welsh Government Building Regulations team,

Please find attached the National Fire Chiefs Council (NFCC) response to the consultation paper *'Banning the use of combustible materials in the external walls of high-rise residential buildings'*

The NFCC is the professional voice of the UK fire and rescue services, and is comprised of a council of UK Chief Fire Officers. This submission was put together through the NFCC's Protection and Business Safety Committee, which I Chair. The Committee is comprised of protection and fire safety specialists from across the UK.

In the wake of the fire at Grenfell Tower, it is vital that we use this time to reflect and examine the shortcomings that contributed to the terrible events of 14 June. In principle, the NFCC supports a ban on combustible materials in external wall systems, however we urge caution in ensuring that a ban does not create complacency that issues identified by Dame Judith have been fixed. There is much more to be done to ensure the safety of building occupants, now and in the future.

A ban also requires careful consideration to ensure it can be practically implemented, and to ensure there are not unintended consequences. Regardless of what a ban covers, or if it applies retrospectively, the focus should be on making people safe and ensuring that they feel safe, and there must be a plan in place to achieve this.

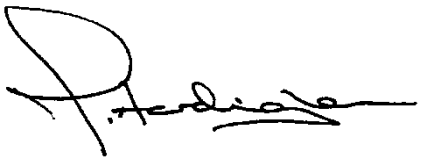
Whilst we are broadly in agreement with the aims, we are also suggesting consideration be given to extending the scope so that fire spread is appropriately restricted for buildings below 18 metres.

Whilst we are broadly in agreement with the aims, we are suggesting some refinements and measures which would be needed to support such a ban. For instance:

- further refining the acceptable categories (classifications) of products to provide further restrictions on smoke production and flaming droplets; and
- addressing the potential for rapid external fire spread in buildings below 18m in addition to what is currently proposed; and
- extending the scope of the ban to incorporate all occupancy groups, in addition to those who are the most vulnerable.

We trust that the attached submission is helpful, and would welcome further discussions with your department following the outcome of the consultation.

Yours sincerely,



Mark Hardingham, Chief Fire Officer, Suffolk

Cadeirydd, Pwyllgor Diogelwch a Diogelwch Busnes / Protection and Business Safety Committee Chair

Cyngor Penaethiaid Tân Cenedlaethol / National Fire Chiefs Council

Llais Proffesiynol Gwasanaeth Tân ac Achub y DU

The Professional Voice of the UK Fire and Rescue Service

NFCC National Fire Chiefs Council

The professional voice of the UK Fire & Rescue Service

Banning the use of combustible materials in the external walls of high-rise residential buildings – Welsh consultation response

Executive summary

In principle, the National Fire Chiefs Council (NFCC) supports a ban on combustible materials in external wall systems, however we urge caution in ensuring that a ban does not create complacency that the broader issues identified by Dame Judith Hackitt have been fixed. There is much more to be done to ensure the safety of building occupants, now and in the future.

A ban also requires consideration to ensure it can be practically implemented, and to avoid unintended consequences. Such a ban would affect a significant number of buildings in some way, and therefore a significant number of residents. Those residents may either be in buildings which still have materials on them and would in the future be covered by a ban, or they might be marginally outside the scope of a ban and feeling concerned for their safety. Regardless of what a ban covers, or if it applies retrospectively, the focus should be on making people safe and ensuring that they feel safe, and there must be a plan in place to achieve this.

Based on the experience of our members to date, fire and rescue services will not have the capacity to manage the support and reassurance required from the public. We therefore suggest that any ban requires significant central resourcing to support and reassure the public.

The proposed ban, as it is suggested, appears to be:

- retaining the same acceptable categories (classifications) of products as an indication of combustibility;
- retaining the same height threshold;
- instigating this through a change in the Building Regulations – so not relying on guidance, as is the case at present.

And in doing so it is:

- removing one of the methods of showing compliance in AD-B (the BS 8414 tests); and
- removing another method of compliance which has been used from other external guidance (the assessment in lieu of test – ‘desktop studies’);

Whilst we are broadly in agreement with the aims, we have concerns regarding some of the proposals, and are therefore suggesting some refinements and measures which would be needed to support such a ban. For instance:

- further refining the acceptable categories (classifications) of products to A2-s1, d0; and
- addressing the potential for rapid external fire spread in buildings below 18m in addition to what is currently proposed; and
- whilst we support the intention to include other building types similar to residential (in particular those who are the most vulnerable) we also recommend extending the scope of the ban to incorporate all occupancy groups.

The ban does not solve all the issues

Dame Judith Hackitt described the design and build process as a 'broken system'. There were many necessary solutions identified, and banning combustible items should not be considered 'job done'. Whilst we agree that a ban would have obvious immediate benefits, there remains the possibility of complacency.

Some within the industry may consider a ban sufficiently addresses the issues, therefore the more difficult issues to address may receive less attention as a result. As Dame Judith has underlined, banning things is no guarantee that people will follow the rules, and this is supported by the NFCC view that much of the cladding on the side of buildings is already banned under the current regime.

The focus must be on ensuring people are safe, and feel safe

Notwithstanding our comments above, we support a ban, and we suggest further extending it so that:

- fire spread is appropriately restricted for buildings below 18 metres and
- for all occupancy types.

Regardless as to whether these suggestions are incorporated or not, subjecting products to a ban might suggest that regardless of what analysis (e.g. a BS 8414/BR 135 test/classification) took place, the products still pose an immediate fire risk.

We understand there are many examples of residents seeking advice and reassurance from our members directly relating to the cladding and whether they are 'safe' within their homes. We therefore recommend further thought be given to how it can be demonstrated to occupants that either their building is safe because:

- it is under a particular threshold, or
- it was built or refurbished prior to a ban being implemented regardless of what justification or analysis took place.

We suggest existing buildings with systems that have previously passed a full scale test (BS8414/BR 135 classification) should not be required to make alterations.

Limitations on FRS resources

We recognise if our recommendations are incorporated and applied retrospectively, this may impact many buildings. Any changes need to be accompanied by a carefully scoped implementation plan, taking account of supply chain considerations as well as the impact on residents. However, the number of buildings affected should not in itself be a barrier to applying the correct standard required to ensure people are safe.

If the ban is applied retrospectively it should apply to buildings where work has started, and on a risk assessment basis for existing buildings. We also suggest existing buildings with systems that have previously passed a full scale test (BS8414/BR 135 classification) should not be required to make alterations.

Specific support is likely to be needed for those affected, and for those in buildings with similar materials but for which the ban has not been applied. FRSs have been very active since Grenfell, inspecting buildings which have had combustible Aluminium Composite Materials (ACM). There is a legislative limitation on enforcement options available to FRS specifically related to external walls, so visits have been limited to checking existing general fire precautions[1], and encouraging owners or those in control to follow central Government advice in terms of interim measures required to support continued occupation of the buildings.

Alongside this, local FRSs have provided support and guidance to residents and owners to ensure they feel safe. Whilst they have undertaken that role, with the limited resources of current Fire and Rescue Services, that level of interaction, given the potential large increase of affected buildings, is not sustainable. It is therefore vital that any changes are supported by sufficient resources for implementation.

The appropriate classification

We welcome that the proposed ban goes further than just ACM products. It is more appropriate to ban all combustible products (with some itemised exceptions such as fixings) rather than just ACM. If a single product only was banned, it is possible this combustible product might be replaced with an alternative combustible product if caution isn't applied.

However, the category including A2 might be too broad. The European classification system set out in BS EN 13501 has sub categories A1 and A2 and then has additional classifications for smoke production (s1, s2 or s3) and flaming droplets (d0, d1 or d2).

Setting the threshold at A2 implies the least stringent A2, s3, d2 (and which is the current classification suggested by Approved Document B (AD-B). Whilst this

[1] General fire precautions are those defined by the Regulatory Reform (fire safety) Order 2005

assumes little contribution to fire, it offers no restriction on smoke production or flaming droplets. As is highlighted both in real fires and in large scale testing, the smoke production and flaming droplets present a hazard, and we think these should be controlled. We believe the classification of the materials warrants much closer scrutiny with regard to both smoke production and flaming droplets.

Whilst we have made suggestions in terms of smoke and flaming droplet classifications we further recommend that any classification chosen is subjected to a programme of large scale testing to ensure that the classification is appropriate.

The 18 metre threshold

We note the intention is to introduce a ban for residential buildings (and similar building uses such as care homes and student accommodation) over 18 metres. Whilst we agree with the principle, we feel that other types of buildings, and buildings below 18 metres should also be considered.

Whilst an 18 metre threshold aligns with current guidance (AD-B and British Standards) in respect of areas such as firefighting shafts, it is a historical height which does not reflect modern firefighting equipment and practices. 18 metres could be considered at best out of date, but perhaps more appropriately, an arbitrary threshold.

Therefore, it may be more appropriate to either:

1. adopt a threshold of 11m which aligns with current operational equipment carried on front line fire appliances, or
2. to consider banning combustible items for any building of any height.

We have recommended the latter (implement the ban at any height for any building) on the basis that:

- Recent experience has shown anything other than a binary approach lends itself to being misinterpreted or misused. This is supported by the review which highlights a culture of monopolising loopholes. Banning combustible items on any height building will be the least risky option, at least until systemic and cultural change within the industry is achieved and trust is rebuilt.

- Our members have also reported it is common to receive designs that are intentionally as close to a threshold as possible, to avoid fire safety measures. In some cases, designs are presented explicitly on that basis. The same thinking would be applied to the proposed 18m threshold.

We see no justification why fire spread below 18 metres should not be restricted or controlled. The functional requirements of the Building Regulations are about the external walls of the building adequately resisting the spread of fire. Those functional requirements are not limited to building height, and we are of the opinion that nor should any solutions adopted (by either law or guidance).

If the threshold (of 18m, or a more appropriate one) is retained, then we suggest some control over combustible items on buildings below this height should be instigated. An option to achieve this might be to require items below the threshold to undergo large scale testing in accordance with BS 8414/BR 135 and make amendments to that testing/classification to incorporate measures for smoke production and flaming droplets.

What buildings should be covered?

We commend the intention of this proposal to apply more widely than just purpose built residential occupancy. As acknowledged, there are other sleeping risks which are rightly considered within scope (for example hotels, student accommodation and residential care homes). It is acknowledged these occupancies have a different evacuation strategy than the usual stay put applied to a purpose built residential, and in most tall buildings they will have access to more than one stair. However, persons will still be at risk from a fire which has the potential to rapidly involve large portions of the exterior of the building.

Similarly, there are some very tall office blocks in which the evacuation is on a phased basis by which some floors (which are not the floor of fire origin) are not immediately evacuated. In a phased evacuation building the stair size has been calculated on the occupants from a limited number of floors evacuating at any one time. This is an appropriate strategy for a tall office building however it is not intended to account for a fire spreading rapidly up the outside of a building and affecting multiple floors. In many cases a building designed for phased evacuation will not have sufficient staircase capacity to simultaneously evacuate all the building's occupants.

We therefore also recommend consideration be given to including all building occupancies.

Other items we suggest could be included in the ban

We strongly support the suggestion to include areas not traditionally considered to be part of the 'wall' but which contribute to rapid external fire spread. Balconies are a good example and we see these involved in fires which spread from floor to floor rapidly, and into flats above the original fire flat. There is currently little guidance on the construction of balconies in purpose built blocks of flats, and in some cases these are built themselves from combustible materials.

In addition, green/living walls should be considered as we have seen these contribute to rapid fire spread. We suspect designers may consider them to be separate from the traditional 'wall' and therefore not in need of protection against rapid external fire spread.

Our members have also reported an emerging trend of incorporating solar panels on the outside wall of buildings rather than the traditional roof location. In some cases, these run the entire height of the building. Energy saving should not be detrimental to

the appropriate fire performance of the building. The potential for fire spread via these vertically located solar panels should be considered as part of this consultation.

Respondent Details

Respondent details	
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Responding on behalf of the National Fire Chiefs Council (NFCC)	

Questions

Question 1.

a. Do you agree that combustible materials in cladding systems should be banned?

b. Should the ban be implemented through changes to the Building Regulations (i.e. through legislation rather than the Approved Documents)?
c. If no, how else could the ban be achieved?

a. Yes, the circumstances surrounding the fire at Grenfell Tower have indicated that stronger measures are required, underpinned by legislation. The Building Regulations and complementary guidance has been subject to different interpretations by persons with an obligation to comply with those regulations.

b. Yes, it will be of central importance that reforming legislation is drafted with sufficient clarity to prevent the legislation being subject to varying interpretations as occurs in the case of the current Building Regulations and associated guidance.

c. Whilst, legislation is the appropriate vehicle for a ban on combustible materials in cladding systems, there will be complementary actions needed by industry and government, as set out in the Hackitt review.

Question 2.

Do you agree that the ban should apply:

a. to buildings 18m or over in height?

b. If no, to what height, higher or lower, should the ban apply? Explain why.
c. throughout the entire height of the wall, i.e. both below and above 18m?

d. to high-rise residential buildings only?

e. If no, should the ban apply to high-rise non-residential buildings, e.g. offices and other buildings, as well as residential buildings?

a. No. The setting of a threshold at 18 metres will result in the continuation of the current practice of positioning the occupied floor at just under 18m, with the objective of avoiding the regulations and thereby saving expenditure on the enhanced fire safety measures which are applicable in the area above 18m. Moreover, for reasons mentioned below, there is no compelling reason why the banning of combustible materials in cladding systems should not extend to premises below 18m, as those combustible materials present a safety threat of rapid external fire spread in premises which fall below 18m, too.

b. The height of 18 m was historically fixed on as appropriate because it dovetailed with the deployment of certain fire-fighting equipment. Such equipment is no longer in use, and the setting of the threshold of the height of premises at 18m has thereby lost its historical rationale.

As abovementioned, the use of combustible materials in cladding systems present a safety threat of rapid external fire spread in premises of any height; and consideration should be given to banning them, irrespective of the height of a building.

c. As rapid external fire spread could result from the use of combustible materials in cladding systems, the banning of such materials should be extended to all external walls, both below and above 18m.

d. No. Regardless of the matters of buildings' height and types of occupancy, the risk of external fire spread from combustible materials in external cladding would make it preferable to extend the ban to building occupancies additional to residential use, particularly to hospitals, care homes, and education establishments.

e. Yes. It is acknowledged that the lack of sleeping in certain premises such as those put to office use will make the persons occupying them less vulnerable than in premises used for residential purposes. However, there will still be a residual risk of rapid external fire spread which could compromise their escape to a place of safety in a margin of safety.

If a ban on the use of combustible materials in cladding systems in all occupancies is not to be introduced, then a ban should, as a minimum, extend to premises where vulnerable people stay and sleep, such as Hospitals and Care Homes.

Question 3.
a. Do you agree that the European classification system should be used?
b. If yes, do you consider that Class A2 or better is the correct classification for materials to be used in wall construction?
c. If no, what class should be allowed in wall construction and why?

a. No

b. Please see answer 3c

c. We are of the opinion that A2 should be further refined than the current AD-B expectation of A2-s3, d2 or better. This classification allows for high smoke production and flaming droplets and we recommend that these aspects should be further controlled. We recommend consideration is given to restricting to A2-s1, d0. (where; **s1** structural element may emit a **very limited** amount of combustion gases and **d0** burning droplets or particles **must not** be emitted from the structural element *emphasis added).*

As per our response to the MHCLG's recent UK Government consultation, we have stated that whilst we are recommending A2-s1, d0, we do so on the basis that we also recommend that the proposed rating is subjected to large scale testing and analysis, and that the testing regime should be amended to include pass/fail criteria which specifically account for smoke production and flaming droplets.

This is to ensure it is suitably robust in achieving the aim of restricting fire spread and therefore is an appropriate standard to adopt.

Question 4.
a. Do you agree that a ban should cover the entire wall construction?
b. If no, what aspects of the wall should it cover?
c. Should a ban also cover window spandrels, balconies, brise soleil and similar building elements?

a. Yes. To extend the ban to the entire wall construction, it will be essential for this term to be defined closely in legislation, in order to prevent avoidance of the proposed ban.

In considering a definition, the contents of paragraphs 21 and 22 in the Consultation Document provide some assistance: the wall construction should extend to **"**more than just the surface of a wall and any insulation materials and instead cover the entire wall construction from the internal face of the wall through to its external face."

b. N/A

c. As combustible materials in relation to some components of the external wall/façade and attachments to the said external wall have the potential for rapid vertical fire spread, the ban should extend to the use of combustible materials in relation to items like balconies, and window spandrels. Other relevant matters relating to the external wall/façade and attachments to its external face, and which require control, include the following-

- items such as 'green wall' or 'living wall' components have which have contributed to rapid fire spread; and
- extensive use of solar panels attached to the outside of a building, some of which extend to the full height of a tall residential tower.

Question 5.
a. Do you agree that a limited number of wall system components should, by exception, be exempted from the proposed ban?
b. If yes, what components should be included on an exemption list and what conditions should be imposed on their use?
c. If no, what alternative way of achieving the policy aims would you suggest?

a. Yes

b. Fixings, membranes (as long as it can be demonstrated that these will not contribute to fire spread).

c. Legislation will be the central way of achieving the policy aims. This would be pivotal in addressing what Dame Judith Hackitt referred to as a "broken system". It would be complemented with the recommended efforts of government and industry identified in her report, and this would need to continue to be emphasised.

As shown by historical changes in behaviour connected with public safety brought about by legislation, such as the Health and Safety at Work Act 1974, legislation would

be the main impetus of changing behaviour about safety in relation to the fabric of buildings as regards fire spread.

Question 6.
Do you agree that:
a. the ban should apply to proposed material alterations to existing buildings, including over cladding?
b. the ban should extend to projects that have been notified before the ban takes effect but work has not begun on site?
c. the ban should not affect projects where building work has already begun?

a. Yes, there will however, remain a range of buildings which will contain external cladding with combustible materials, which will be unaffected because they are not subject to material alterations.

For existing buildings, we suggest the risk based approach should consider both the building itself (for example buildings with a single stair) and the vulnerability of residents (for example a care home).

This is sector risk well understood by fire and rescue services so we would be prepared to assist in the development of any risk based approach. This needs to be unambiguously communicated to ensure everyone is assessing the risk in the same way.

We suggest existing buildings with systems that have previously passed a full scale test (BS8414/BR 135 classification) should not be required to make alterations.

b. Yes

c. No all projects should be considered

Question 7.
a. Which wall elements are likely to be affected by the proposed change – i.e. where they would pass as part of a cladding system in a BS 8414 test but would not meet the proposed Class A2 or better requirement (e.g. sheathing boards or vapour barriers)?
b. In England there are suggestions that since the Grenfell Tower fire, a high proportion of relevant building work is already using elements which meet Class A2 or better. What is your experience?
c. What is the impact of removing access to the BS 8414 for those buildings affected by the ban test is likely to be?
d. How much extra cost would typically be involved in meeting the proposed new requirements (for buildings 18m or over) against a building which

meets the current requirements? (Please provide any further details)
e. Please provide any further comments on the likely impact of this change for construction e.g. supply chains

NFCC is unable to answer all the elements of this question and will leave 7 d, e, to those with more information than ourselves to pass comments.

a. NFCC is not best placed to answer this question so those with more experience and knowledge in this area will be able to provide more comprehensive detail.

However, one material we do recommend is considered is timber items such as timber cavity barriers, and timber framed windows in which the frame itself forms the closure around windows. These are used in some designs at the moment and careful consideration should be given to if these are intended to be banned or will be so unintentionally.

b. Our members have noted on occasion that this is happening

c. NFCC is not best placed to answer this question so we will leave to those with more information than ourselves. However, we consider that if the consideration isn't given to control of materials below 18m, then we recommend that wall systems should still be subjected to full system fire testing using the appropriate test, and inspected on site to ensure correct installation.