**CIAT’s Response to: Building a Safer Future**

**Independent Review of Building Regulations and Fire Safety: Final Report from Dame Judith Hackitt**

*CIAT is the qualifying body of Architectural Technology professionals.*

*Architectural Technology is the technology of architecture; a creative, innovative design discipline rooted in science and engineering, and an integral discipline within the built environment.*

*As a design function, it relates to the anatomy and physiology of buildings and their production, performance and processes based upon the knowledge and application of science, engineering and technology, which are compliant with regulatory, statutory and legal requirements.*

*Architectural Technology achieves efficient and effective construction and robust sustainable design solutions that perform and endure over time.*

*Our members’ competencies are innovative, creative and practical. Their fundamental skills include the ability to consider design holistically, taking into account all aspects of the composition. This includes the vision to run and lead projects from inception to completion, evaluating the client requirements balanced with the performance of the building together with its impact on the environment and the safety of its users.*

**Invitation for CIAT’s Direct Involvement:**

We consider it essential that CIAT is an active participant on the implementation of the recommendations contained within this Report going forward. The very position CIAT’s members hold together with their particular skills and training, places them in an invaluable position to contribute constructively and productively. This is evidenced in Scotland where we have direct participation and lead on various aspects by the Scottish Government Building Standards review where, as the lead profession, we have been invited to act as a Chair or experts on Panels on such matters relating to Fire standards, compliance and enforcement and review.

**Final Report: Executive Summary**

We fully support the Report’s scope to review, as a whole, the regulatory systems and procedures. However, we would welcome discussion on the developing narrative following this wholesale review since certain particulars are promoted at the expense of others.  This might not deliver the future envisioned due to industry capacity at various pinch points in the approval and assurance process.

The amplification in the ‘executive summary’ of an entire system not fit for purpose we consider should be qualified by management in use issues together with poor maintenance and inspection.  The widely accepted rarity of major fires would suggest a healthy degree of incongruence between the two positions of wholesale problems and exceptionally few incidents.  This is not attributable merely to fortune, it is because we have ambitious and dedicated, qualified and competent, educated and articulate, people designing and constructing our built environment: there are discrete issues that have led to safety gaps caused by poor fire safety assurance processes through design, construction and management in use, and the Report diligently looks at these in some detail.  However, the narrative of incompetent designers and contractors attempting to circumvent safety is not recognised in the design process. It should be recognised however, that profit margins can influence contractor behaviour and sub-contractors are unlikely to understand the wider building issues: they are on-site to perform a particular task.  It is also not uncommon for jobs to be rushed at the last minute because pressure is applied due to various factors, external and internal.

The absence of the QDR process from the Report is unfortunate and one which we would suggest be reconsidered. Fire safety assurance can be improved by being delivered in practice using the QDR, itself informed, as appropriate, by desktop studies.  In this respect, desktop studies must be promoted and interrogated through this process.

It is equally true that any QDR is only as strong as the team assembled: thus relevant competences are important, provided they are supported by experience.  Sector specific expertise is evident in the industry already – in rail, airports, nuclear, shopping centres.  We certainly agree that a similar robust sector specific expertise process needs to be developed for high-rise.

Additionally, the change control process and record keeping can be poor.  This is again resolved by improved fire safety assurance and the cited intervention points in appendix B of the Report.  A model assurance process needs to be developed in conjunction with this approval route method.  The role of government in setting outcome-based criteria is not clear – the Building Regulations would already appear to accommodate this.  It appears that the failings are a result of a lack of understanding and following the procedures and processes that are already in place. Is outcome-based criteria around building life cycle and management of it, in addition to Building Regulations?

It is implied that the Building Regulations are unfit for purpose.  There is no explanation given for this conclusion.  Guidance could be clearer, the Regulations themselves are clear.  We concur change control is an issue: hence the need to promote the QDR process.

If the duty-holder needs to “identify and make improvements where reasonable and practicable”, how will this be evaluated in situations where no material alteration occurs, or if the situation is no worse than existing?  Will this premise be removed from Building Regulations so that improvement is always made?

The safety case is for high hazard – low population industries.  Some ALARP tests are not suitable for high-rise residential or other buildings where mobility and vulnerability issues arise, such as in care homes and hospitals.  A serious re-think on ALARP is required in connection with cost-benefit analysis thresholds, gross disproportion tests and probabilistic analysis studies (PSA).  The Channel Tunnel PSA is often held as an example of the shortcomings: a 1 in 400 year event has happened five times since the tunnel opened in the mid-1990s.

Gross disproportion thresholds arise from the Sizewell B enquiry from evidence given by John Locke.  This has never been tested in law.  The value of preventing a fatality in actual fact is not representative of the evidence provided at Sizewell, because the assessment is too narrow.  It excludes parliamentary time for legislation, further enquiries, bureaucratic broadening, more guidance documents, new training / monitoring, and management time at all levels of organisations.  What needs to be clarified is the application of either ‘deemed to satisfy’ or ‘ALARP’ to high-rise residential.  And if ALARP is to apply, are the disproportionate thresholds of between 3 and 10 times the value of preventing a fatality correct?  Is it actually the right way at all in the new safety case proposed – at Grenfell 10 times preventing a fatality would result in it not being adopted if the cost was £1.4BN (using £2M per fatality).

What will the JCA change from BS-9991 and BS-7974?  How will JCA competency be assured?  The main benefit of the JCA is based on the interim Report’s excellent recommendations, which shrewdly drew out some key concerns relating to client power with respect to LABCs / AIs (also an issue in other countries reviewed) and the premise of a non-worsening condition not necessarily handing back a building which is ‘safe in case of fire’ – the words of the existing Building Regulations.

The building in use safety case is a good idea because many tower blocks are still run-down.  The intent of the JCA approach will meet reality and it will take a great deal of time to get all buildings over 10- storeys to an ALARP condition.  Providing this is in electronic format it is good because relevant parts can be uploaded to a cloud where residents have access.

How will the overarching body in competence interface with professional institutions?

**Chapter One**

Recommendation 1.1 – HRRBs should take into account occupancy profiles, layout complexity (wayfinding), means of escape capacity and if alternative escape is available, smoke control/sprinkler provisions.  Some buildings of 8 or 9 storeys might not be as safe as those of 40 storeys.  Compartmentation in both should be available.  A single criterion is not a suitable way to trigger the need for the JCA.

1.8 – regulatory streamlining during design and management in use is welcomed.

JCA in action – the model needs to include assessment of bespoke details that might vary from ADB Robust Details that are already approved.  A detailed knowledge of testing standards, their interaction and equivalency particularly for products tested to other national standards, is essential.

1.18 – Schedule 1 is not a set of siloed requirements – it is the process that is at fault.  The Report is right that improved interfacing is needed.  Recommendation 1.3 is right that the Approved Documents need integrating to read consistently.

1.21 – How is the outcomes approach different to Schedule 1?

1.26 – Defence in Depth is right, and over reliance on a single measure is correct – high-rise tower blocks only have a single line of defence: compartmentation.  Odd though, that a single criterion is used to define the need for the JCA and HRRBs.

1.32 – The CAA model is proportionate for HRRBs – it will be interesting to see how the HRRB affects an industry mindset with so many different stakeholders.  Airports find it easier due to a controlled environment, large workforces and funding.

**Chapter Two**

2.3 – Life cycle approach is welcomed with a baton relay approach as proposed.

Table 3 – where does the Safety Case interface with the key information products?

Table 4, Gateway 2 – this needs to mention the QDR process for ensuring substitute products and value engineering is assessed by competent persons.  The QDR audit trail is essential for the Safety Case audit trail.

2.26 – Gateways points are fully supported. The high end of the industry already achieves this, particularly in the mass transportation and power industries.

Recommendation 2.7 is especially good and should apply to a wider range of buildings.  Despite CDM, record keeping is poor.

Recommendation 2.9 – The purpose of the QDR process is to notify regulators of change in projects.  It would be good for this to be recognised and widely adopted.

2.46 – This needs be to managed carefully – the FRA need reasonable grounds for rejecting plans and consistency needs to be improved so that project teams understand the rules of engagement with the JCA to be successful.  Dispute resolution is interesting: BCOs can presently overrule fire officers.  Who will be the new executive in the arbitration process?  Can this change be practically limited to HRRBs?  It is suggested that an independent Design Verification Engineer (DVE) applies an enhanced version of the Common Safety Method (CSM) to assess the plans, audit trail, nature of dispute and expectations of management for the building in use to deliver a decision.  Timescales are very important, so the early engagement of the DVE when dispute is likely is very important.

2.51 – It is suggested the notice terminology is made consistent with the Regulatory Reform (Fire Safety) Order (RRO).  In fact, the RRO could be updated to reflect the emphasis proposed.

Recommendation 2.14 – this might disincentivise works, or delay them.  For example, fire door replacement should not instigate a full safety case review otherwise it might be delayed.  The triggers should be thought through very carefully, as should be the HRRB definition of 10-storeys or over.

**Chapter Three**

3.3 – It is more likely than unregulated work inside a dwelling can cause risk.  This is well noted.

3.4 - The fire risk assessment of tower blocks only covers the common areas.  Gas engineers can enter homes – no mention is made of improving power of inspection so that residents do not pose disproportionate risk to others.  Whilst it is noted that this issue is appraised in paragraphs 3.100 to 3.129 of the interim Report, the recommendation is posed as a problem rather than a solution.  Why isn’t this final Report more forthright in carrying out power of inspection to give a full fire risk assessment of a building (common parts of and flats)?

3.20 – Information at handover (Regulation 38) needs beefing up across the board.  CDM has not delivered in this area and thus it is reasonable to be sceptical about the new JCA.  What will the Safety Case mentality and Safety Case requirements deliver?  If successful, why not bolster CDM for the whole industry?

3.30 – This paragraph recommends that home owners’ flats are included in the FRA process.  This is welcomed but tenants must have legal responsibilities to permit entry too, and enforcement actions if they pose a threat / fire risk to others in the same building.  Some organisations operate a three strikes and out policy already.

3.34 – the safety case contents are a bit light.  Why is there no mention of the fire alarm cause and effect (or systems in general), fire strategy, building material details and changes to them, quantification of fire loads and adequacy of compartmentation levels, etc.  There is a lot to transfer and interpret into an HRRB safety case from other sectors.

3.42 – the residents need to be educated about fire safety before interrogating fire safety information (we note that clause 4.26 notes funding to achieve this).  They can participate in a handover QDR workshop to support learning about the specifics of their building.  Education is important to support residents being pro-active – otherwise they might overlook a defect, not realising it to be one.

3.46 – will this ‘co-operation’ between tenants have legal teeth if they do not comply?

3.57 – this reads as though the JCA will have obligations under Part A – Structure, and Part B – Fire Safety.  Is this intended, or is the review aimed at structural response to fire?

3.58 – this paragraph implicitly highlights the risk of a single criterion for HRRBs – lower buildings could have more risk than higher ones.  This should be re-visited.  Paragraph 3.59 reinforces this view: the position is not clear about what minimum requirements are expected, although a QDR process would help.

Recommendation 3.8: what sanctions are foreseen?  Can this be more explicit?

**Chapter Four**

4.5 – schools have governors – normally just parents and teachers.  It is evident that a similar forum should be instigated for the residents’ voice, together with an expectation on training of responsibilities.

4.13 – the ‘safety rating’ comparison is potentially subject to the law on unintended consequences, as has been seen in the insurance market reaction following Grenfell.  It might skew the house market pricing and widen the socio-economic gap that fire safety itself is subject to.  Residents not receptive to management decisions could organise themselves on social media and denigrate decision-making processes (see clause 4.21) – they might not follow the intended management processes as envisaged (see clause 4.23).  Publication of the ‘safety rating’ is not a good idea.  We invite further consideration on this recommendation.

4.16: it is not always straightforward to demonstrate, beyond doubt (or to ALARP), that the right materials are in position, or combined composition, with other materials in a supine, vertical, prone or external condition are safe.  This issue links directly with testing materials via consistent methodologies and Part B Robust Details.

Recommendation 4.5: we fully support quick routes of redress if internal routes have failed for tenants.

4.32 – we question why the Report does not recommend banning gas from HRRBs?

**Chapter Five**

5.2 & 5.11 – the problems of competence and focus on individual specialisms is solved by inter-disciplinary reviews and / or the QDR process.  We ask why the Report has not considered existing, well-practised solutions?  Accreditation is welcomed, but this does not solve silo thinking – it can actually just deepen the specialism silo.  Improvement is about process – incompetence which is weeded out through robust peer review / fire safety assurance process, which also permits mistakes from competent people to be corrected.

There should not be sole emphasis on qualifications of fire engineers, but experience too, this has incredible value.  The qualifications in fire engineering are relatively new and some practising fire engineers did not benefit from access to dedicated courses, this does not necessarily impact their competences.  Many people in industry have worked their way up professionally from electrical or mechanical engineer backgrounds, and have obtained competency in fire engineering through years of experience.  This should not be compared with a graduate with a qualification as equal status – qualifications can be trumped by experience in major projects.  The findings do recognise competency but the Report must make a distinction between academic achievement and professional experience to achieve competence.

For example, fire strategies are often peer reviewed by fellow fire engineers, and by most disciplines affected by its contents.  Peer review is essential: at Manchester Airport the Jacobs fire strategy was peer reviewed by both Hoare Lea (contractor engineers) and Arup (client board peer review) – i.e. four Chartered Fire Engineers reviewed the document.  This is rigorous assurance and manifests the beauty of the QDR in action.  Please promote it.  Qualifications and certificates do not change culture, process does.

5.7 – We cannot determine within the Report where it has demonstrated a ‘broken’ system.  This is essential as the profession of the whole construction industry is being called into question without qualifying the statement.

5.12 – Professional bodies have Codes of Conduct which already expect members to seek assistance beyond their competence/ or to refrain from undertaking the project.

5.21 – Is re-accreditation to affect the Membership of these professionals with their professional body i.e. their Chartered status, or is the scope limited to HRRB work certification schemes?

5.32 – The paragraph notes: “existing professional and accreditation bodies are best placed to define these requirements; develop the competence framework, education and training required to deliver this and any accreditation needed; and consider the remit of this role in introducing and overseeing the process by which residents would be able to access fire safety awareness training”.  It is essential that we as a professional body, with one of the critical disciplines necessary for the successful implementation of the Report’s recommendations are involved in this internally and with like organisations.

**Chapter Six**

6.2 – if there is evidence that people are unclear about roles, we consider that this is a procurement or project management failing as opposed to the fault of guidance documents like ADB and effective communication and/or training.

6.3 – negotiating ADB down is not possible with a competent BCO or AI.  There must be an adequate alternative approach.  If the alternative approach is acceptable via consultation with the BCO and Fire and Rescue Service, then it has received peer review.  This part belongs in the competency section, Section 5.

6.7 – Guidance should not be owned by ‘industry’.  The Report says: “this is because it should be owned and produced by those who are accountable for managing building safety risk and therefore have a strong incentive to ensure guidance keeps pace with innovation”.  Auditing companies marking their own homework has not worked (see market behaviour in the Big Four and major contractors carrying out Government work).  There needs to be clear water between users and enforcers.  There is also a question over who or which body in the industry would lead, and why?

6.10 – we consider that industry fragmentation is not a good argument for ‘industry’ to own guidance.  It would seem better if the BSI owned ‘standards’ (guides) and that if competent people recognised innovation was not being covered, it is incumbent on them to notify the BSI and convene a panel of specialists and other stakeholders to produce a new BS, or revise an existing one. The costs of such Standards should be subsidised to ensure wide acceptance and must not be so high as to make them prohibitive to the SMEs

6.15 – what is described here is how the BSI operates, with various committees writing standards.  Why not expand its capacity?

6.18 – This is a good model, although how will ‘industry’ be composed to produce guidance?

6.21 – The BSI also operates in this way – this should be recognised?

6.26 – Robust Details would help simplify guidance – these should be considered?

6.28 – The multi-access standpoint might create complexity.  What role will ‘industry’ play in ensuring the matrix is correctly poised to avoid safety gaps?

**Chapter Seven**

7.1 - the narrative on desktop studies is negative, and this is wrong.  They are a tool, just like ALARP justifications such as cost benefit analysis and the unpalatable gross disproportionate tests.  They are incredibly useful in existing buildings to consider options over the ‘no worse than existing’ premise (paragraph 1.85 notes proportionate improvement over the building life cycle, which hints at removing the ‘no worse than existing’ premise in the interim Report).  Desktop studies can be used to show, in principal, or evidentially if they are semi or fully quantitative, that ‘no worse than existing’ does not translate to ‘safe in case of fire’.  This argument applies to residential high-rise, care homes and hospitals, and this needs building on.

CIAT responded to the consultation Desktop Studies.

7.2 – Read Robust Details Ltd.  The industry uses them for Part E and L of the Building Regulations, these could be considered for Part B?

7.4 – Products outside Robust Details need to be certified for use, in fact the best way to do this is to involve manufacturers in the JCA safety case, or otherwise the project QDR process.  They can then confirm if they are happy for the product to be used as intended, or whether it needs testing in such a proposed arrangement.  Once tested, details can be added to the Robust Details library.

7.10 –The Report claims holistic improvement and focusses on cladding.  Why not be broader about other materials – or consider furnishings and fittings that create flashover conditions in tenant flats?

7.12 – CIAT fully supports this: testing methodologies need to be produced (paragraph 7.21 seems to suggest this is needed, but is not clear enough when it refers to a new ‘approach’).  Use of consistent language in paragraph 7.14.

What is needed is certainty among competent professionals.  Even testing professionals make judgements on material performance when a variety of tests are performed.  For example, take a fabric which is European Class D to BS EN 13501-1 which also satisfies BS-5852 ignition source 5 on a crib test set-up.  What equivalency should exist between BS-476, BS EN 13501-1, BS ISO 1182, BS ISO 1716, etc?  This needs financing as research to bring clarity.  Further, when such materials are assembled into certain configurations for construction details, verification should be undertaken to provide confidence in Robust Details.

Extrapolation is a key problem for materials used in vast quantities.  Roofs and cladding need express consideration with firestopping details and peer review through a fire safety assurance process.

Product substitution and value engineering must be routed through a QDR fire safety assurance process, with suitable (multiple) peer review.  It should be obvious that departure from an ADB Robust Detail should result in testing if doubt is expressed in a QDR process over extrapolation claims.  Process, process, process.

7.13 – Field of Application Reports are well used in the industry and should be readily available to all designers.  A fire doorset achieving 57 minutes only gets certified as 30 minutes, but if an ASET/RSET calculation shows escape is completed in 45 minutes, then the FoA is very useful.  Periodic retesting for all complex buildings (not just HRRBs) is also a good outcome from this Report (paragraph 7.15).

7.16 – The QDR process can root out poor product substitution, whether the JCA is involved or not.  This again highlights the inadequacy of the JCA involved for buildings over 10 storeys as a single criterion to trigger JCA input.  Complexity is measurable by population (size/profile/needs), building size (length, height, width) and building spatial complexity or process complexity.

7.24 – Traceability improvements are fully supported.

7.31 – A national product enforcement body, armed with proportionate sanctions is supportable.

**Chapter Eight**

8.10 – CIAT supports the ‘golden thread’, but it must be asked why CDM does not already address this.  What is deficient in CDM to require this emphasis for HRRBs only.  What happens, for example, in 9 storey hospitals with patient populations of 7,500?  Is the focus on HRRBs at 10-storeys or over implicitly recognising an industry capacity problem?  It is contended and thus the Report is a missed opportunity to improve industry fire safety.

8.12 – BIM has been in the industry for a long time – it is applied for the rail industry and is growing into other key (CPNI) industries too.  What is needed to expand on HRRBs, is a CPNI list of BS’s to integrate BIM into complex buildings, suggested as:

BS-9992 – rail (due to draft comment August 2018)

BS-9993 – airports and associated infrastructure

BS-9994 – power stations

BS-9995 – hospitals

BS-9996 – chemical & process

BS-9997 could be used for HRRBs, although it would be better if the single criterion definition of number of storeys was abandoned.  All buildings covered in a new BS-999x should have JCA oversight, and BS-9991 be expanded to include high-rise residential.

8.18 – BIM data is only robust if backed up by on-site assessments.  CDM is useful here since buildings need to be designed so that they can be inspected fully.

8.27 – How can ALARP be demonstrated without records?  Is the Report saying open up the entire building?  If so, 9 storey buildings are fine without information (which should have been provided under CDM), but 10 storey buildings get intensive focus.  This paragraph puts building managers in an impossible position – it fails to grasp the purpose.

**Chapter Nine**

9.3 – Why not just recommend that Government model contracts should always prioritise life safety in case of fire?  Why not mandate a QDR process and interdisciplinary checking regimes to ensure designs are co-ordinated with fire safety prioritised?  Why not require construction contracts that necessitate building information handover or face sanctions similar to fraud offences?  Why avoid building-in-use contracts between managers and tenants and state what minimum criteria is needed from both sides.

9.9 – Best value contracts do not prioritise safety, they strike a balance between build and operational costs.  This is not new and dates from the Local Government Act 1999.  This is dislocation from the thrust of other recommendations such as putting the residents at the heart of projects.

Recommendation 9.1 (a) – cost reduction is fine if the risk remains within the broadly acceptable region of ALARP.  What must be proven is that the building remains safe in case of fire, e.g. imagine an airport terminal over 20m high with proposed structural fire resistance of 90 minutes reduced to 60 minutes where savings of millions of pounds could occur.  Should a contract prevent this saving?

Recommendation 9.2 (a) – it is good to see whole system thinking linking through from earlier in the Report with procurement.

**CHAPTER TEN**

10.12 – Yet again, the QDR process is the answer, yet again the Report is silent upon this solution.

10.13 – Egan, Latham and PPC2000 are inferred here.  The lessons learned from these studies need to be expanded upon and made specific for fire safety?

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