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Dame Judith Hackitt's Independent Review of Building Regulations and Fire Safety: The Final Report

Introduction and background

Dame Judith Hackitt's long awaited final report into the Independent Review of Building Regulations and Fire Safety has been published today.

Dame Judith's final report (the **Report**) follows the interim report published in December 2017 (the **Interim Report**). The Interim Report identified a number of key areas of concern in respect of building regulation and fire safety in respect of high rise and complex buildings. In short it recommended a complete overhaul of the regulatory system. In particular it identified that the "*current system of building regulations and fire safety is not fit for purpose*".

The Report builds on the recommendations set out in the Interim Report and provides a more detailed analysis of the various irregularities identified in the Interim Report following a further detailed inquiry.

Significantly, Dame Judith does not recommend an outright ban of ACM panels that are not of limited combustibility (i.e. the type that was installed on Grenfell Tower). Since the Report was published this morning, a number of press articles have questioned this approach.

This blog sets out the key findings and recommendations provided in the Report. These are summarised below:

1. **Higher Risk Residential Buildings:** Dame Judith introduces a number of new terms in the Report. In particular, Dame Judith refers to Higher Risk Residential Buildings (**HRRB**) - namely new and existing high-rise residential properties which are 10 storeys high or more.

2. **The creation of a new Joint Competent Authority (JCA)** comprising the Health and Safety Executive; the Local Authority Building Standards; and the Fire and Rescue Authority. Amongst other duties, the JCA would be responsible for holding the Client, Designer, Contractor and Owner to account, and for overseeing better management of safety risk in HRRBs throughout the lifecycle of the building.

3. **Regulatory framework:** the Report recommends a new regulatory framework for fire safety in respect of HRRBs as the existing regulation is considered to be overly complex and unclear.

4. **Key roles and responsibilities:** as greater clarity is required in respect of the roles and

responsibilities of the parties involved in constructing HRRBs, the Report lists and describes the roles of critical parties involved in a building project. These are as follows: Clients; Principal designers; Designers; Principal Contractors; and Contractors.

5. **Gateway points:** the Report identifies three key "Gateways" throughout the lifecycle of a construction project where duty holders will have to satisfy the JCA that they can properly account for the safety of the as-built building, amongst other matters. Broadly speaking the Gateways are the following: 1) planning stage; 2) starting the work; and 3) handing the building over for occupation.

6. **Competence:** Dame Judith calls for better accreditation of individuals working on HRRBs.

7. **Change in the competence of Building Standards Inspectors:** in particular, a more inquisitorial approach is necessary, and Building Standards Inspectors are required to "*be skilled at challenging clients, designers and contractors about their proposals, and to assess the adequacy and suitability of these proposals*".

8. **Governance roles within the Government:** it is recommended that the Government should create a new structure to validate and assure guidance, oversee the performance of the built environment sector, and provide expert advice. In particular Dame Judith recommends that the Building Regulations Advisory Committee (**BRAC**) should be replaced by a new structure of advice and assurance.

9. **Products**: cleaner and more effective product specification in respect of the materials involved in a construction project, in addition to regular (every three years) retesting, the responsibility for which lies with the manufacturer.

10. **Labelling and traceability:** in response to significant issues with identifying the production and manufacturing process for products once delivered to site and unpackaged, permanent marking for materials is suggested.

11. **A 'golden thread' of building information:** significant concerns were raised in the Interim Report regarding fire safety information, in particular the fact that the processes in place for ensuring this type of information was maintained and handed over after completion were inadequate. To tackle this, the Report recommends that a Fire and Emergency File (FEF) be introduced and a Building Information Modelling (**BIM**) approach phased in.

12. **Procurement and supply:** the Report considers that the procurement stage sets a precedent for the works and defines the behaviours of the project. In addition, comment is made regarding the various payment practices provided for in a construction contract, with the suggestion that this can apply financial pressure on subcontractors resulting in the most cost effective product being purchased on occasion to the detriment of health and safety considerations.

The remainder of this note summarises some key aspects of the Report as follows:

1. Design construction and refurbishment
2. The 'golden thread' building information
3. Guidance and monitoring to support building safety
4. Procurement and supply
5. Competence
6. Products

Appendix as follows:

Appendix 1: Outline of Fire and Emergency File (FEF)

1. Design construction and refurbishment

The Interim Report identified that building safety is not sufficiently prioritised during any stage of the building process, nor effectively monitored by the regulator. Responsibility is handed down via subcontracts and this is not an effective process for ensuring health and safety requirements are met.

In light of this, the recommendations in chapter 2 of the Report set out the proposed regulatory framework during procurement design and construction. The key recommendations are considered further below.

Key roles and responsibilities

As part of Dame Judith's recommendations, Dame Judith considered that it is necessary to identify the key roles "*best able to understand and manage risks to construction site safety*". Dame Judith considered that the same roles as identified in the CDM Regulations could be adopted. The key roles that Dame Judith considers are critical in ensuring a focus on building safety, and an explanation of why the role is critical, is set out below.

1.1 **Clients:** the client's role is critical because "*develops and maintains a sense of ownership and responsibility for building safety and regulatory compliance*"
1.2 **Principal designers;** they ensure, on behalf of the client, that the key 'Gateway Points' (more on this key term below) are observed and key players engaged.
1.3 **Designers:** help create an audit trail of any design changes throughout the lifecycle of the works.
1.4 **Principal contractors:** take on primary ownership throughout the construction phase, through to handover.
1.5 **Contractors:** ensures accountability and helps "*create an audit trail to ensure that any on-site changes can be followed back through the Principal Contractor and ultimately to the client*".

Key information products

The Report identified four key information products that are essential to ensure "*greater duty holder oversight*" in respect of building regulation requirements throughout the procurement, design and construction phases. The key information products are set out below:

1.6 **The digital record:** this is a record of the building as planned, then as built, and will include important information such as the products used.
1.7 **The Fire and Emergency File:** a key building safety information file to be created and maintained, and passed (for continued management) to the current building owner.
1.8 **Full plans:** detailed plans/specification of building works in respect of fire and structural safety, alongside other information necessitated by the building regulations
1.9 **Construction Control Plan:** describes how building safety and building regulation compliance will be maintained during the construction phase.

The Report recommends strengthening regulatory oversight of dutyholders' activities through the creation of a clear set of 'Gateway Points' at key stages in the building life cycle. This will require dutyholders to satisfy the Joint Competent Authority (JCA) that their plans are robust; that their understanding and management of risk is appropriately detailed; and that they can properly account for the safety of the as-built building. The Report states:

> *"Creating a system whereby dutyholders will not be able to gain permission for land use, start building work or begin occupation until they meet the necessary requirements at the relevant stage, will also drive the right behaviours".*

The key Gateway points are proposed are:

1.10 **Gateway Point 1:** Obtaining permission to use the land for the intended use.

The dutyholder will be required to address some minimum requirements around fire safety when submitting a planning application to the local planning authorities, and will require input from those with the relevant expertise.

1.11 **Gateway Point 2:** Starting building work (The 'Full Plans Approval' process')

At this point, the Principal Designer should formally present the JCA with Full Plans. These plans will need to satisfy the JCA that the layers of protection for that building ensure that risks are reduced so far as is reasonably practicable in the key safety areas. More generally, the plans will also need to show compliance with all aspects of the Building. The dutyholder will only have authority to start work once these plans are approved by the JCA.

1.12 **Gateway Point 3:** Completion / Occupation

The Contractor should be required to present the JCA with sufficient records of the final buildings in the right form to enable a full assessment of building safety (and all other relevant requirements). The client will also need to confirm that relevant building regulations' requirements are met and the building is therefore safe. Dutyholders will also need to present proper records and a justification for all changes made since Full Plans sign-off.

Recommendations for more effective enforcement

It is recognised that better enforcement for non-compliance is required, in addition to clearer and stronger sanctions. These include Improvement/Correction Notices when the JCA or Local Authority Building Standards believe works are in breach of the law.

2. The 'golden thread' of building information

The Report notes the unanimous concern raised during the review that the rules surrounding the creation, maintenance and handover of building and fire safety information are inadequate. The Interim Report identified the need for a 'golden thread' of information for all HRRBs so that the original design intent could be maintained, and changes can be managed through a formal review process.

The Report states that the FEF and digital record are two key products that form part of the golden thread of information that is to be transferred. There are three parts to this section.

Part 1: The creation of a digital record

Recommendations:

2.1 Government should mandate a digital (by default) standard of record-keeping for the design, construction and during the occupation of new HRRBs. This is to include any subsequent refurbishments within those buildings.

2.2 Digital records are to be in a format which is appropriately open and non-proprietary with proportionate security controls.

2.3 The Government should work with industry to agree what information must be held in the digital record for new HRRBs.

With regard to new builds, the Report recommends that a Building Information Modelling (BIM) approach should be phased in. BIM is a process of designing, constructing or operating a building or infrastructure asset using electronic, object-orientated information. This forms part of the wider move towards improved transparency and integrity of information because dutyholders will have a suitable evidence base through which to deliver their responsibilities and maintain safety and integrity throughout the life cycle of a building.

The Report acknowledges that the BIM record must be updated and managed in a security-minded way throughout the building life cycle. The Report also acknowledges that a realistic timeline will be required to allow the industry time to adapt these new standards.

The non-exhaustive example list of the information that should be recorded, maintained and available includes:

- the size and height of the building,
- full material and manufacturer product information,
- identification of all safety critical layers of protection,
- design intent and construction methodology,
- digital data capture of completed buildings e.g. laser scanning,
- escape and fire compartmentation information; and f) record
- inspections/reviews/consultations.

Part 2: Existing Buildings

Recommendations:

2.4 The Government should work with the industry to agree the type of information to be collected and maintained digitally (by default) to enable the safe building management of existing HRRBs.

2.5 Dutyholders must identify and record where gaps in the above information exist and the strategy for updating that relevant information.

Importantly, the Report notes that data collection attempts in respect of existing buildings have been hampered by the lack of building safety information available. As such many duty holders are unable to identify and evaluate risks and will therefore be unable to demonstrate to the JCA the safety of that building. Dame Judith therefore recommends that a set of minimum building data for existing buildings is included in the safety case.

Where information is not available and cannot be collected, the duty holder will need to explain why this is reasonable and what steps they have taken in mitigation against the (potentially unknown) risks, so far as is reasonably practicable.

The types of information that should be recorded, available and maintained for existing buildings are:

- size and height of the building;
- structure;
- fabric;
- escape and fire compartmentation information;
- systems in operation; and
- permanent fixtures and fittings.

To avoid placing unreasonable requirements on existing building owners where information has not been handed over from the construction phase or from a previous owner, the JCA may require less information than is required for new buildings. Intrusive surveys may be required for some buildings.

Part 3: Information accountability

Recommendations:

2.6 Dutyholders must hold, transfer and update information throughout the life cycle of the HRRB. Information from this record is to be provided to the JCA in the event that this may be required

The Report states that operators within the record-keeping system are required to 'practice in a competent manner' and hold and manage the required information accordingly for each HRRB. Information will be used by the dutyholder to report to the JCA and must be transferred when building ownership changes to ensure that the golden thread of information persists throughout the building life cycle.

3. Guidance and monitoring to support building safety

One of the main criticisms in Dame Judith's Interim Report was that it was not clear who within the industry was responsible for ensuring that the outcomes required by the Building Regulations 2010 had been met, or who was accountable for compliance. The Report provides an update on the implementation of the Interim Report's recommendations for improving accountability and monitoring. There are three parts to these recommendations:

Part 1: Ownership of guidance to support an outcomes-based approach

Recommendations:

3.1 The Government's long-term aim should be that guidance on how to meet the building regulations is owned by the industry, while the Government sets out regulatory requirements and provides oversight of the regulatory system.

3.2 The Government should reserve the right to create guidance if the industry has not proven that it is able, or is deemed unable, to produce suitable guidance.

The Report reiterates that the purpose of building regulation is to ensure that the Government sets clear outcomes and behaviours to be adopted to ensure that buildings are safe and fit for purpose. The Report acknowledges, however, that:

> "*For the regulatory framework to cover all necessary aspects of the building's life cycle, a statutory framework that is consistent and remains relevant to innovation and change within the sector is necessary. It is not realistic to expect guidance to stay ahead of changing practice if it is owned by government, especially in an industry which is as fragmented and diverse as the built environment sector.*"

As such, the Report recommends an outcomes-based approach to regulation, to run in conjunction with a package of guidance that is created and owned by industry.

The new regulatory framework will require industry and regulators to agree solutions that reduce risk '*so far as is reasonably practicable*'. This means that there will still be minimum arbitrary targets in the guidance; however there will be a greater emphasis on informed assessment by competent persons and demonstration of safety. The industry will also be required to demonstrate that new technologies, products and materials are safe and in compliance with the outcomes required by the Regulations.

The industry will be afforded support from independent technical experts to produce the guidance, including the Health and Safety Executive, as part of the JCA. The views and requirements of small and medium sized enterprises and sole traders will also be considered.

Production of industry guidance will be a phased process and the Government will maintain initial responsibility for ensuring that the guidance produced by industry is suitable and sufficient. As such, Government should reserve the right to create guidance if industry has not proven that it is able or is deemed unable to produce suitable guidance.

Part 2: Governance roles within the Government

Recommendations:

3.3 The Government should create a new structure to validate and assure guidance, oversee the performance of the built environment sector and provide expert advice.

3.4 There should be a periodic review (at least every five years) of the effectiveness of the overall system of building regulation including accountabilities, responsibilities, guidance, and the effectiveness of the regulator.

Dame Judith recommends that the Building Regulations Advisory Committee (BRAC) should be replaced by a new structure of advice and assurance.

The Report proposes that building regulations should now perform 4 functions:

(A) **Validation and assurance that industry guidance is fit for purpose.** The group undertaking this role will be formulated of individuals with a wide range of experience in the construction process, technical knowledge and demonstrable independence. It is envisioned that their role will take significant direction from the JCA once it is formulated.

(B) **Reviewing the ongoing performance of the building environment sector.** The purpose of this role is to ensure that the regulatory system delivers safe buildings whilst continuing to encourage innovation and productivity. This role will need to be supported by the collection and analysis of performance data, from CROSS and Mandatory Occurrence Reporting.

(C) **Engineering advice so that government can act intelligently in control of the built environment.** This role will encompass providing expert advice across the whole of the engineering of the built environment to ensure that high quality advice on the built environment is available to government. This is to allow government to act as an intelligent client for the JCA and the industry.

(D) **A periodic review of the effectiveness of the overall system of building regulation.** This should be performed by an independent external expert on a regular basis.

Part 3: Promoting a systems approach through restructured guidance

Following the Interim Report, an Expert Group was commissioned to investigate how the Approved Documents may be restructured to mainstream fire safety and structural safety across all types of building work. The Report supports the Expert Group's recommendations, which are summarised as follows:

(A) clear user-friendly language and formatting of the guidance (including Approved Document B);
(B) multiple points of entry for different users to the document set, to provide clear advice for different types of building work. This recommendation was prompted by an issue raised following the Interim Report that the Approved Documents were too complex. Specifically, the Approved Documents reference various other documents and standards. This is confusing and makes it difficult to determine what the industry should do to meet requirements.
(C) facilitating the prioritisation of fire and structural safety while encouraging a holistic approach that considers all building safety objectives; and
(D) a building regulation manual to explain the role of the Approved Documents.

4. Procurement and supply

As is majored on in the Interim Report, Dame Judith considers that all stakeholders and entities involved in a building project should be mindful of and bear some responsibility for fire safety and health and safety management.

In respect of this, the "procurement and supply" section of the Report, considers the responsibilities of the stakeholders involved at the very initiation of a building project – i.e. the entities involved in the process of buying the land; building; and materials.

Specific focus is made on the contract and the procurement stage and that it is this period that sets a precedent for the works and defines the behaviours of the project - in particular that "*the agreements made determine the relationships between those commissioning buildings, those constructing buildings and those occupying buildings*". In light of this, Dame Judith recommends a culture change in that procurers should prioritise building safety by engaging competent people with the appropriate accreditation. Specific reference is made to the content of contracts to achieve this, in particular that "*thinking carefully about the content of the contracts that are drafted between the procurer and the duty holder*".

In light of the above the following recommendations were made:

4.1 **Procurement relationships:** contracts should clearly outline the roles of the key parties involved in the works including the client, the principal designer and the principal contractor. While it is evident that work will need to be delegated "*these accountabilities cannot be handed down*". The focus of the procurement should be on best practice and value and not lowest cost. Building projects that last should be a focus.

4.2 **Tender process and contract terms:** the invitation to tender and bid process should prioritise building safety. Efficiency during the tender and procurement process should be encouraged as opposed to focusing on the use of cheap and unsuitable materials. In addition, Dame Judith referred to retentions and other payment terms within the contract that could potentially lead to poor behaviour as they put a financial strain on the supply chain. A key example of this would be the non-payment of a subcontractor that is therefore forced to procure cheaper products and "*substitute materials purely on price rather than value for money or suitability for purpose*".

4.3 **Retention and transfer of contractual information:** effective document management practices are a key focus. In particular that the contractual

documentation connected to building safety throughout the lifecycle of the building should be retained and made accessible.

5. Competence

Concerns regarding the competence of professionals involved in the construction industry were a key focus of Dame Judith's Interim Report. Reference is made to the "excessively" fragmented nature of the relationships between the entities involved in a construction project and how this can lead to compliance issues, in addition to an increasing the likelihood that individuals involved in the project are not properly accredited or experienced. Reference is made to the lack of a true central overseer that is commonplace on construction projects. This lack of a joined up approach is a breeding ground for regulatory failure.

In light of this, in the Report Dame Judith recommends that tighter accreditation is key and that this should be led by the relevant industry sectors that oversee the entities involved in the building work.

Against the above backdrop the key recommendations to tackle the perceived issue with competency in the industry are summarised below:

5.1 **Establishing effective leadership:** Dame Judith calls on professional bodies to deliver leadership and in particular to be the driving force for meeting the coherent approach provided for in the report. Inter-relationships between business leaders and service sectors involved in the construction industry are encouraged. There is a suggestion that the construction sector can learn from the management and experience of other sectors including the financial sector. In particular, Dame Judith set out the following: "*to learn from the experience of how they have managed issues such as asset integrity*"

To further develop this point, specific reference is made to Buncefield and the government and industry response that ensued. The following quote from the Buncefield Standards Task Group is referred to: "*How industry responds to incidents such as Buncefield and how the regulators respond on behalf of the public is a measure of our society*". Dame Judith considers the task force that was set up and the industry changes that came about from Buncefield and is of the view that a core set of industry principles was established. It is evident that Dame Judith wants to mirror this approach following the Grenfell tragedy. In particular Dame Judith noted that (in relation to Buncefield) "*in seeking to apply the Principles, industry has worked closely with their relevant trade associations to develop and improve sector and cross-sector collaboration*". It is evident the construction industry can follow where others have led.

In addition, collaboration within the leadership of the construction industry and the need to take a holistic approach is encouraged. The system needs to operate in an integral manner.

5.2 **Developing a competence framework for HRRBs:** Any party involved in carrying out work on a project that impacts on fire safety and other building risks are required to have proved competence to do so.

Reference is made to the six key professionals identified in the Interim Report as whose work is essential to the fire safety of HRRBs. These are as follows:

(1) Engineers
(2) Those installing and maintaining fire-safety systems
(3) Fire engineers

(4) Fire risk assessor
(5) Fire safety enforcement officers
(6) Building control inspectors

In addition to the above following further review, the updated report identified additional entities where proposals in relation to competence are proposed. These are as follows:

(1) Building designers
(2) Architects
(3) Building safety managers
(4) Site supervisors
(5) Project managers

During the course of the investigation, Dame Judith appears to have developed a better understanding of the breadth of entities involved in building projects and the challenges in "*bringing this altogether across such a wide ranging landscape*".
Dame Judith considers the current approach to testing the competence of individuals involved in the construction industry is disjointed and is not detailed or rigorous enough. Reference is also made to the requirement set out in the Interim Report for professionals and accredited bodies to work together to "*propose a robust, comprehensive and coherent system covering all disciplines for work on HRRBs*". In addition the following points were made:

(B) Accreditation bodies should themselves be rigorously accredited with a publically recognised method (for example UKAS)
(C) Entities should interact appropriately with other professionals and understand that their responsibility entails viewing the building as a complex system.
(D) The report references examples of other successful accreditation systems including the Hot Work Passport regime introduced by the Fire Protection Association. This is a scheme designed to enhance the level of competence with those involved with work that has the potential to produce ignition sources.

5.3 **The competence of the regulator and duty holder:** Reference is made to the creation of a Joint Competent Authority (JCA) which comprises the Health and Safety Executive; the Local Authority Building Standards; and the Fire and Rescue Authority.

5.4 **Building Standards Inspectors:** In particular, a more inquisitorial approach is necessary and Building Standards Inspectors are required to "*be skilled at challenging clients, designers and contractors about their proposals, and to assess the adequacy and suitability of these proposals*". Additional training is required.
The report recommends that Local Authority Building Control and the Association of Consultant Approved Inspectors work together to define a new approach to competence framework.

5.5 **Duty holders:** Reference is made to three key duty holders identified in the report (as referred to above - the client, the principle contractor and the principle designer) and that these entities should collaborate with professional bodies to develop a robust system for:

(1) The competency requirements of a building safety manager of HRRBs; and
(2) Facilitating a process by which residents can access fire safety awareness training.

6. Products

In line with the recommended amendments to Approved Document B (which include detail regarding the fire testing procedures for materials involved in building works), a key aspect

of the Dame Judith review was a focus on better and clearly testing of products and materials involved in construction.

In particular, reference was made to the vital impact products can have on the fire safety of a building and that in light of this better regulation is required. The same criticism that was levied against the Approved Documents (a lack of clarity) can be levied at the testing procedures for products and materials. In particular Dame Judith states that "products must be properly tested and certified, labelled and marketed appropriately" and that the system that covers product testing and labelling is "*at least as complicated as the entire regulator system that was mapped in the interim report*".

Against this backdrop Dame Judith made a number of recommendations. The recommendations are two-fold as follows:

6.1 establishing a more transparent testing regime; and
6.2 the required modification of the current standards regimes.

Establishing a more transparent testing regime

The following matters were considered in respect of the above requirement:

6.3 **Restricting assessments in lieu of tests:** The post-Grenfell issues regarding desktop studies are eluded to, in particular the Government's consultation on the proposed amendments to Approved Document B.
Reference is made to the criticisms in the Interim Report regarding the use of desktop studies, in particular that their use should be restricted to ensure they are only used in a responsible and appropriate way by competent people. Dame Judith refers to the current system where there is choice between using only materials of limited combustibility or that a full scale test is undertaken. The option of using limited or non-combustible products is conceived to be "*undoubtedly the lower risk option*". Furthermore, where a full scale test is the chosen option, Dame Judith considers the entity that has chosen this approach is responsible for ongoing testing of the system throughout the product's lifecycle and that it should be continued to be tested. This creates "*an ongoing and more onerous responsibility beyond supply and installation*".

6.4 **Cleaner and more effective product specification and testing**

(1) Greater transparency is required, specifically in respect of instances where a product has failed a test on a number of previous occasions but has then subsequently passed a test and knowledge of the previous test failures is not made available.
(2) Particular emphasis is made in respect of the responsibility of manufacturers to make clear on the face of a product the limitations of the uses of the product.
(3) Regular (every three years) testing of products was recommended and that the responsibility for the retesting rests with the manufacturer.

6.5 **The required modification of the current standards regimes**

Standards

The immense confusion in respect of the relevant standard to apply is highlighted in the report. Particular reference is made to the 500 standards that are referred to in the Approved Documents. It is recommended that standards should not burden the industry and should

therefore be proportionate. A streamlined and more simplified approach to test standards to the materials should be employed.

In addition, and significantly, Dame Judith recommends that test standards should be developed to "*identify any potential failure of test standards, their application, and the manner in which they are used in practice*".

Product labelling and traceability

Significant issues with identifying the production and manufacturing process for products once delivered to site and unpackaged are referred to, in addition to confusion regarding product labelling. While not specifically referred to in the report, this is particularly significant in circumstances where the specific type and manufacture of an ACM panel needs to be identified in order to understand whether it complies with Building Regulations.

A strong case for materials carrying permanent marking to ensure traceability was advocated.

Creating a more effective market surveillance regime

Reference is made to recent cases where products that were previously accredited subsequently failing, as follows:

(1) The fire door that was marketed as being 30 mins fire resistant but subsequently failing retesting; and
(2) The ACM cladding installed on the Grenfell Tower.

These examples are the clear drivers for change in how products are tested. The Construction Product Regulation is cited which dictates that market surveillance is the responsibility of each member state of the EU. Dame Judith suggests this is not adequate and that at a national level, more robust and effective enforcement is required as well as a surveillance regime with national reach. Dame Hackitt predicts this will increase the likelihood of products complying with their performance requirements as this would drive the introduction of risk-based testing.

Appendix 1: Outline of Fire and Emergency File

The Fire and Emergency File (**FEF**) should become a clearer obligation on the client, the Principal Designer and the Principal Contractor to initiate, update, finalise and then pass across to the building owner to help them better understand how to effectively manage their building in a fire/emergency.

It is recommended that a standard FEF would include:

1. all assumptions in the design of the fire safety systems such as fire load, any risk assessments or risk analysis

2. all assumptions in the design of the fire safety arrangements regarding the fire safety management of the building including emergency procedures;

3. escape routes, escape strategy and muster points;

4. details of all passive fire safety measures e.g. compartmentation, cavity barriers, fire doors, duct dampers and fire shutters;

5. details of fire detector heads, smoke detectors, alarm call-points, fire safety signage, emergency lighting, dry or wet risers and other firefighting equipment, exterior facilities for fire and rescue services;

6. details of all active fire safety measures such as sprinkler systems, smoke control systems;

7. information about any elements of the fabric and services that may adversely affect the 'general fire precautions' in a fire (e.g. cladding);

8. any other high-risk areas in the building e.g. heating machinery;

9. information on the requirements of the fire safety equipment including operational details, manuals, software, routine testing, inspection and maintenance schedules; and

10. provisions incorporated into the building to facilitate the evacuation of disabled and other potentially vulnerable people.

The Report notes that one of the significant risks created by emergency situations (not only fire, but also structural collapse, explosion, flooding, electrocution, exposure to harmful substances and threat from terrorist/criminal activity) is the possibility of panic resulting in crowding in escape routes and at exits. Dame Judith emphasises the importance of ensuring that routes and exits have been designed, specified and constructed with this risk in mind.

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