

## Where is fire engineering going?

Mostyn Bullock BEng CEng FIFireE, Technical Strategy Advisory Group (TSAG) Chair, and Adam Monaghan BSc CEng FIFireE, TSAG member, discuss competency and provide an update on the building regulations review and Construction Industry Council (CIC) working groups\*

In *Building a Safer Future – An implementation plan*, published in December 2018 by the Ministry of Housing, Communities and Local Government (MHCLG), the following is stated: ‘In December 2017, the Review’s Interim Report identified the key problems of the system as: Lack of Competence – the means of assessing and ensuring the competence of those working on high rise and complex residential buildings was seen to be inadequate’.

What efforts are we, as the fire engineering community, actually making to do our bit to deal with this harsh reality? Is it true? We think it is true. But, has the penny dropped for everyone yet?

We wrote about this in our series of articles four years ago (<https://portal.ifehosting.org.uk/IFP-Journal>); our discipline needed to change then. More people probably realise it now.

On January 18 2019, *Inside Housing* published the article ‘Who watches the watchers?: councils’ use of unregistered fire risk assessors revealed’. The article reports their enquiries revealing that: ‘Only 26 said all their assessors were registered, 23 used a mix of registered and unregistered assessors and 23 used exclusively unregistered consultants to assess the safety of their tower blocks.

‘Perhaps just as worryingly, the remaining 56 did not even know whether the professionals they had used were registered’.

This is a stark reminder of something that mirrors what we know still to be prevalent in fire engineering. But how does a client know any given fire engineer is adequately professionally competent? We still have no legal requirement for any fire safety professional to have any kind of formal registration or minimum professional qualification to practice.

A lot has happened in the four years since we co-authored our series of non-technical articles for IFP relating

competency in fire engineering. Since then tragic events have taken place resulting in the Dame Judith Hackitt review of Building Regulations, which was published in May 2018. These events have set all sorts of wheels in motion involving a plethora of professional bodies and government departments.

The key headings that we covered in the 2014 papers included responsibilities, perception of guidance as ‘golden rules’, ethical practice and, quite frankly, just doing the job of a fire engineer properly. The article details can be found below:

1. Have you got time? Oct 1, 2014 *International Fire Professional*
2. Shouldering the responsibility Jul 1, 2014 *International Fire Professional*
3. Code Compliance or fire engineering for life safety design – have we moved on? Apr 1, 2014 *International Fire Professional*
4. The development of competency in Fire Engineering Jan 1, 2014 *International Fire Professional*.

Key questions posed in the competence papers still resonate:

- i. Are clients clear on their responsibilities under CDM

Regulations to ensure that persons contracted to provide design are competent and properly resourced to do so?

- ii. The absence of awareness and proper compliance with Regulation 38 can justifiably be described as endemic. Why is this? Is it due to an inadequate change control process to account for deviation from the approved design during construction delivery, a reticence to enforce it at a time when emotions are invariably running high at project handover, or absence for clearly defined responsibility to ensure that the necessary handover of complete and accurate information takes place?
- iii. Should our profession be pushing the regulators to explore the option of making the designer legally responsible for certifying that the design has been properly implemented (as is the case in the Republic of Ireland)?
- iv. Does the paucity of engagement of fire engineers in the delivery of compliance of Regulation 38 provide further evidence of a general



2016 - The contractor, building control officer and fire risk assessor all thought this services’ riser fire door was okay...

- detachment of the fire engineer from the project before final commissioning and handover?
- v. Have we reached a time where all complex or high-risk projects need to be signed off by a chartered engineer?
  - vi. Do those undertaking the first risk assessments ask enough questions of the contractor's delivery team? Do the clients use this legislation to help themselves enough? Are they put under pressure at time of handover from those about to move in, i.e. 'we need to move now so accept it as it is' and thereby place themselves at risk of accepting faults and defects?

The questions and subjects raised have been brought sharply into focus with the still emerging failures post-Grenfell. Surely the need to get our house in order is more pertinent now than ever? But how are we (the fire engineers) now going to play our part? There are many facets to this.

### The Dame Judith Hackitt report

The government-commissioned Hackitt report provided an independent review of the building regulations. The terms of reference were specifically to create a 'stronger regulatory framework'. There were far reaching suggestions contained therein. Despite shamefully inaccurate press reports and clear political filibustering by members of Parliament



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at the time, the suggestions appear to have gained broad support and have been incorporated into *Building a Safer Future – An implementation plan* published in December 2018 by MHCLG. Specifically, in relation to building regulation approvals process, the direction of travel currently appears to include:

- b. Permission Gateways at:
  - i. Planning
  - ii. Design (plans approval)
    - 1. Creation of 'Fire and Emergency File'
  - iii. Completion (permitting occupation)
    - 1. Sign off
    - 2. Handover of 'Fire and Emergency File'
- c. Joint Competent Authority (JCA)
  - i. the cessation of the principle of allowing a duty holder (i.e. builder) to choose its regulator
  - ii. 'Normalising' the building control process
- d. Ensuring competency of those working on the project
  - i. Hackitt fundamentally challenged the construction industry to put its



house in order.

As we said in our previous articles, the need for the construction industry to put its house in order was long overdue. Although the proposed changes are significant, they appear to have been cautiously welcomed by a significant element of the construction industry.

### Construction Industry Council (CIC) Working Groups

The CIC has effectively been given the lead by MHCLG to work on furthering the competency aspects of the recommendations of the Dame Judith Hackitt report on building regulations.

To that end, the CIC has set up a number of working groups which have been tasked to develop the requirements for and detail of structures for ensuring ethical and professionally competent practice. This includes joint working on CPD between the different disciplines of design, specification, construction, approval and management responsible for building safety, including fire.

Of the 12 groups, Working Group 3 – 'Fire Engineers' has been considering wide-ranging matters of professional competence on behalf of fire engineering. The outcome of this activity has included some specific recommendations. Key recommendations for ensuring adoption of competent fire engineering include:

- 1. It has been discussed with RIBA that their proposed *Fire Plan of Works* that has been issued for industry consultation should be edited to include a row specific for the fire engineer (as for the structural engineer). This row would include for involvement of the fire engineer throughout the design and construction stages of the project.
- 2. MHCLG should provide published guidance which refers to an expectation



...but it wasn't, and this lack of basic competency put people in real danger

that a fire engineer working on a project (for which the implementation plan is relevant) should be a member of a Professional Engineering Institution (PEI).

3. When auditing a project for compliance with the 'Gateway' process, the JCA should perform a check that the fire engineer(s) responsible for work carried out on the project are members of a suitable PEI.

Key recommendations for ensuring those doing the fire engineering are competent include:

1. It should be mandatory for engineers working on buildings to have membership of a professional body with a published Code of Professional Conduct (COPC) and Whistleblowing Policy.
2. The professional body must offer support and published guidance to its members on whistleblowing and have a robust and effective disciplinary procedure for sanctioning members who breach the body's COPC.
3. The professional body must itself be subject to licensing/certification and audit of its membership and registration activities by a national body operating under government license or royal charter (e.g. Engineering Council, UKAS, Ofqual etc.)

Therefore, it follows that a clear way of demonstrating personal professional competence would be for the engineer to hold membership of the IFE and professional registration with the Engineering Council through the IFE.

Success will be judged by ending the long-standing perception that fire safety engineering is about 'getting things over the line', i.e. a service that is brought in only when perceived by others as needed to deal with points of dispute, variation from design codes or when things have gone wrong.

If, as we hope, an expectation by key stakeholders for professionally qualified and appropriately indemnified ethical and competent fire safety engineering input at all RIBA work stages becomes the 'norm' then this will act as the catalyst for research and academia to engage people with the opportunities presented by the profession.

## Providing Engineers Now

If such things do come to pass, then is there going to be sufficient professionally qualified persons registered by the IFE (and other professional bodies)?

The existing status is that there are currently about 250 fire engineers registered as CEng through the IFE with the Engineering Council. Not all of these registrants are practicing in aspects of fire safety engineering that relate to the Gateway process proposed by the Hackitt report. But, outside of the IFE and professional registration, it is known that there are a significant number of persons practicing as fire engineers, many of whom are competent in the work that they do.

If JCA enforcement of the Gateway process delivers a requirement for acceptable competency to be judged by means of recognisable professional registration, then this may create a catalyst for these professionals to seek the membership and registration required.

In turn, this may pose a short-term challenge for the capacity of the application process for membership and registration, which must not result in lowering of the bar to put bums on seats.

Currently, a three-step process exists for professional registration through the IFE:

1. Meet the Academic Standard
2. Provide a Professional Review Report
3. Complete a Professional Review Interview.

It is known that many current practicing fire engineers arrive in their various roles and responsibilities through multi-various 'atypical' routes. For example, building services, architecture, health and safety, civil engineering etc. This typically means that to obtain professional registration there is additional work for them to do to navigate the registration process including technical reports etc. In the face of balancing the demands of work with moving this forward, this creates a situation where many are disincentivised from applying.

This all takes money and time. Surely, companies will have to act on the fundamental need for IFE CEng registration otherwise business will

suffer. This should be adequate incentive on its own. Does the IFE need to increase membership fees to enable recruitment and subsequent deployment of increased resource to assist?

This could help achieve the 'catch-up' required, but where will the next generation of fire engineers come from?

## New Blood

There are not enough undergraduate courses in fire safety engineering that are funded through appropriate research activities. Will this not need renewed industry and government support?

Graduates and IPDS (Initial Professional Development Systems – implemented by employers) feed the IFE membership and Engineering Council registration process. We do not know how many competent fire engineers are required. If there are 250 IFE CEng registered fire engineers now, does there need to be 1,000 or 2,000? Or are 250 enough?

Depending on the eventual breadth of its regulatory definition, if every 'high-risk' project needs sign off by a professionally registered fire engineer then there could well be a need for many more than we have now.

The government needs to have a plan to support the academic sector and employers. Academia needs to provide the educated graduates funded through research so will the government step up, realise this fundamental link and start to put money into research?

Industry needs to assist with grassroots encouragement at school level. How many 16 to 18-year-olds are even aware of what fire safety engineering is? Can tragic events be used to help galvanise a new generation of enthusiastic talent to consider a career in fire safety engineering?

Ultimately, the IFE and its member fire engineers have to lead this process at a major turning point for our industry. This needs to be recognised and, as we said a few years ago, we fire engineers have to step up and fight for the right outcome that we want.

It is no good just hoping. Everyone who cares needs to get involved.

*\*Mostyn is Chair and Adam is an active participant in CIC Working Group 3 – Fire Engineers.*