

Have you got the time?

In the final in a series of articles on competency, Mostyn Bullock BEng(Hons) CEng MIFireE and Adam Monaghan BSc(Hons) CEng MIFireE report on the harsh realities of the Fire Engineering industry and propose what needs to be done to achieve Total Fire Engineering

This paper is the last in our series of four. Previously, we have looked at the delivery of fire safety design in terms of technical competency, rigor and responsibility.

We have established that Fire Engineering needs adequate attention to detail to deliver it competently. It is also impossible to deliver good work without the time to think it through, capture it, explain it and agree the right solution. This cannot be achieved without proper allowance in any fee and scope agreement for this time. We all have a right to request reasonable time and in so doing an expectation of appropriate remuneration in return.

'Reasonable Prosperity' is a fair expectation is it not? Well we think so, but commercial pressure, harsh fee negotiation and, a lack of understanding frequently inhibit this. Fire Engineers have to maintain that toughness we referred to in a previous article to ensure that the contractual platform to do our work competently is achieved. We cannot pretend that a job is going to need less time than it really does. Any other way and the profession does itself a massive disservice; and all too frequently does.

It is no accident that this article considers the requirement for adequate time rather than fee. Some different businesses will have a very different cost base. A sole trader will very likely have a lower cost

base than a large multi-disciplinary organisation; hourly rates vary as appropriate to the organisation.

However, whilst pricing structure is a commercial decision, time is not.

Adequate time to perform the role is a requirement and is not unique to fire safety engineering.

All professional engineering institutions licensed by the Engineering Council to register professional engineers are required to base their assessment of applicants for Chartered Engineer on a standardised set of competency and commitment criteria. These are published by the engineering council as 'The UK Standard for Professional Engineering Competence (UK-SPEC)' and can be found at [http://www.engc.org.uk/engcdocuments/internet/Website/UK-SPEC%20third%20edition%20\(1\).pdf](http://www.engc.org.uk/engcdocuments/internet/Website/UK-SPEC%20third%20edition%20(1).pdf). UK-SPEC includes the excerpts in the box below.

A Chartered Engineer is thereby expected to be competent and experienced in matters relating to project leadership and management such as negotiating contractual terms for engagement, allocating resources, dealing with variations to the scope of work as they arise and budgetary control etc.

In this respect, in times gone by, the Chartered Engineer was expected to demonstrate an ability to negotiate, allocate and manage resources and budget in a fairly linear sequence from enquiry to delivery.

The UK Standard for Professional Engineering Competence (UK-SPEC) (3rd Edition)

C2 Plan, budget, organise, direct and control tasks, people and resources.

This could include an ability to:

- Set up appropriate management systems
- Define quality standards, programme and budget within legal and statutory requirements
- Organise and lead work teams, coordinating project activities
- Ensure that variations from quality standards, programme and budgets are identified, and that corrective action is taken
- Gather and evaluate feedback, and recommend improvements.

Take responsibility for and control project operations. Manage the balance between quality, cost and time. Manage risk register and contingency systems. Manage project funding, payments and recovery. Satisfy legal and statutory obligations. Lead/manage tasks within identified financial, commercial and regulatory constraints.

However there are now many more dimensions to the various steps in the project management process.

Risk/Reward

"Can you just give me a quick view on this?"

"We're going to appoint you for this job, can you just attend a meeting?"

Some of this is perfectly acceptable business development of course. Just about any business knows that it has to give a bit away to develop and maintain a customer base. Fire safety engineering is no different. It has been long standing common practice to provide some support on a free of charge basis to established clients or clients in helping them with bids for projects, tenants tenders etc. But, increasingly, is the proportionality of this placing us under significant strain?

Recently, in April 2014 the *Architects Journal* referred to a report which stated that: 'Practices are chasing and winning projects at fees that are too low, or worse, they are doing large quantities of speculative work, with no fee at all: more than 60 per cent of practices kindly undertake speculative design work for their clients'. (www.architectsjournal.co.uk/8661826.article?WT.tsrc=email&WT.mc_id=Newsletter2)

Fire Engineers are under a lot of pressure to do the same.

Consultants' time and experience is valuable. The value is in the competent provision of a professional service. Many clients build buildings, rent floor space, provide a hub for transport, own retail outlets etc. This means they operate a very different business model. Ultimately, clients for construction projects are rarely construction consultants. This in itself is not a problem as clients need the service a competent Fire Engineer can provide. But different business models can lead to a lack of understanding of respective commercial positions. Time for a Fire Engineer is money; but for a contractor, steel tonnage, £/m² construction programme is also money; and the sums involved in building are comparatively huge in comparison to the Fire Engineer's fee. This can lead to disparity in the understanding of respective commercial positions and conflict. A few examples are outlined below:

Contractor tenders for preferred bidder status on projects are highly competitive. Bid teams often request significant levels of development in design proposals. Sometimes, even to the extent of providing a fire safety strategy design with approval by a Building Control Body. This swiftly becomes

an issue when the bid team wants the work free of charge on the promise of future remuneration if the bid team is successful. To this end there is an expectation that the Fire Engineer (along with others in the bid team) effectively becomes a speculator/investor (call it what you like, it is the principle that matters) and will 'win some' and 'lose some'. All well and good but for the fact that those leading bid teams seemingly struggle with the concept that such contribution needs appropriate recognition and reward. Is it not fair to expect reward for this contribution which will more than make up for the resources expended and written off on the unsuccessful bids? The fact that the architect may not be kicking up such a fuss undermines the whole concept of reasonable prosperity. We must remember that we expose ourselves to professional liabilities even with free advice and therefore Fire Engineers should be rightly protective of their position on risk and reward.

Even when jobs are won and the design proceeds, it does not end there. It is not uncommon for clients to ask for a percentage of the Fire Engineering fee for detailed design stages to be deferred at risk to financial close of the deal with the D&B/main contractor. The same risk/reward relationship exists here. However, before financial close can be reached, the project often has to be 'de-risked'. This leads to the requirement for greater detailed design to be done 'up front'. Therefore, where traditionally the design used to be taken to what we used to know as RIBA Stage D (now RIBA Stage 3) for financial close, it is now increasingly common for the design to be taken through to specification and tender stages before financial close is reached. This changes quite dramatically the quantum of work and therefore time needed to undertake the Fire Engineering adequately. Fair payment for work or a fair risk/reward relationship surely makes sense?

We have to take the time to explain and educate our clients of our commercial position. We have to be clear. We have to stand up for reasonable payment for service provided. We have to approach these discussions with a thorough understanding.

Contract and Liability

Fire Engineers are regularly sent full legal appointment documents. I am sure many of us let out a heavy sigh when they land, sometimes quite literally with a thud on the desk. This is the nature of consultant appointments now. Funders require them to release funding, contractors require them,

developers require them and architects require them when performing sub consulting services. They are here to stay whether we like it or not.

These are legal documents and Fire Engineers are not usually completely competent to review them. So this in turn means legal advice is needed. This costs time and money. Do we adequately allow for this in our proposals? Is extra fee allowance captured to cover these costs? What about the small two day task dealing with one specific issue? The Association of Consulting Engineers (ACE) short form agreement was designed to deal with this type of work but this seems to be slowly disappearing.

The level of liability and insurance requested is all too often disproportionate to the level of service offered. Why on earth would a Fire Engineer accept a £5k commission for unlimited liability? It is not uncommon to find liability clauses in contracts that are simply unacceptable. A clause in a recently submitted contract required the Fire Engineer to be jointly liable with all other members of the project team for any losses incurred irrespective of who was responsible for the loss. When this was queried, the client stated that everyone else had signed it. Similarly, is it reasonable to be contractually obliged to do extra work for free if the delay between the client request and issuing notification of additional fees required exceeds five days? We think not. The competent Fire Engineer must be tough enough to reject clearly unreasonable contractual terms!

Frequently, third party solicitors (eg representing Funders) send through late amendments so there are repeated issues of documents for signing at the nth hour. These are often accompanied by a covering email or letter claiming that only minor amendments have been made which are not significant. However, scrutiny frequently reveals that the amendments are anything but insignificant eg increasing liability requirements beyond those which were originally agreed.

Fire Engineers in larger organisations very often have in house legal departments. The costs of legal work are often 'smoothed' meaning the service is there when needed. But this luxury is not available to smaller organisations. The fact of the matter is that legal advice costs money. The industry requires us to have this legal advice so the cost should be passed on.

Getting Paid

Having an agreed contract in place means you will get paid, does it not? If only that was the case.

Actually getting the cash for the service provided is a fundamental right surely. Consultancy businesses need to get cash in the bank to pay the bills otherwise there is no businesses. This means our invoices should be paid within a reasonable time. So why is it, when there is a clear skill shortage of competent Fire Engineers, do we still work for clients that are poor at paying their bills?

Why is it we sometimes have to resort to the threat of legal proceedings or stop work to actually free up payment? Contractors do sometimes treat consultants like a trade subcontractor. Whilst, contractually, we may indeed be a subcontractor, our service is very different and work 'on account' or 'on credit' really doesn't apply to provision of consultancy services. However, should we be surprised if contractors have policies of going to the wire before releasing payment?

The hot potato of 'paid when paid' still appears on various projects. Expert witness work is not bound by UK contract law and neither is any work outside the UK. It is usually the big signature overseas projects where such terms still exist and the size of the prize sometimes blinds the engineer. Risk can be mitigated to a degree by limiting the amount of work carried out or ensuring upfront payment but this can lead quickly to impasse and dispute. There is effectively no legal recourse if the client decides not to pay or cancels the project. The only workable measure is to withhold work, including design documents at key stages until payment is received. However such a business approach does not usually sit comfortably with sensible corporate governance and an ISO9000 QA system. Pay when paid generally is not any fun so engineers need to walk into those situations knowingly.

Fundamentally, Fire Engineers should have adequate time allowance to perform the role competently.

Doing things 'knowingly' is the crux of the matter. We have to knowingly enter contractual situations from a position of proper understanding. We have to pay for legal advice. We have to understand the risk/reward equation such that it is appropriately balanced. We have to get paid. The fact that financial management is embedded firmly as a competency and commitment expected of a practicing engineer turns this into an ethical code of conduct matter and one cannot argue with the clear logic of this.

It is very difficult to deliver a competent Fire Engineering service without knowingly understanding these commercial factors. This may

seem very basic but how can we expect reasonable prosperity otherwise?

As stated in our first article, Fire Engineering became a recognised discipline in its own right in 1996. It had moved away from the days when the appointment of a fire consultant typically happened when the architect was faced with a problem or impasse with the AHJ on a matter of code or test standard compliance. Since then the Fire Engineering profession has prospered through being viewed as an essential pro-active element of the vast majority of construction projects.

But, the profession now finds itself in a period of increased focus on minimising 'consultant' fees. On a significant number of projects, clients have taken the backward step of expecting the architect to perform the fire design using whatever assistance is available from the building control body and with Fire Engineering being identified as something to be brought in to resolve 'non-compliances'. For the reasons we have explored in our previous articles this raises fundamental issues with competency, rigor and responsibility.

This potentially turns the Fire Engineering service clock back to the days before 1996. But, thanks to deregulation and commoditisation of the Building Control function which has continued apace and has left us without the safety net of the same level of regulatory scrutiny which used to exist, this is dangerous territory.

The consequence of the market's return to this 'sticking plaster' attitude towards Fire Engineering is evidenced by a persistent increase in the amount of expert witness work in connection with serious problems that are coming to light with fire safety on newly completed buildings. There is a particular irony here in that the costs of lawyers, appointed expert witnesses, remedial works, relocation and compensation usually dwarfs the cost that would have been incurred by the project team in doing the job properly in the first place. Problem is, the money comes out of a very different set of pockets.

An 'age of increased defects' should allude to the need for greater rigor in design, assumptions, construction and material selection. This should of course include an appropriate degree of site scrutiny/quality control. Fire Engineers need to be engaged properly throughout the life of a project to ensure it is done right.

The intent of this series of articles was never to scrutinise the technical methods used in Fire

Engineering. The intent was to discuss the current state of the Fire Engineering industry and to tackle some harsh realities that must be considered when doing it competently. If we are to achieve Total Fire Engineering, we must:

- Properly understand codes and standards; their origin, context, intent and not use codes as some kind of shield
- Not sell on the basis of cost saving alone. This dilutes what we do and fundamentally undermines what good Fire Engineering is all about which is safety
- Engage properly with research in the built environment from academia through to product testing and delivery
- **Lead the construction industry to ensure delivery of the fire solution on site through rigor in advice on material and product selection and build quality**
- Shoulder appropriate responsibility and carry the necessary liability for our work but not others
- Ensure reasonable prosperity for all by allowing adequate time and having a thorough understanding of our contractual position.

We currently live in times with little appetite for increasing regulation and there is not much to indicate that the governmental pursuit of removing cost from the public purse will do anything else but continue. The construction industry will probably find itself faced with even lighter touch regulation and enforcement in the future, but with the perfectly reasonable expectation that it keeps its own house fully in order by making sure that it shoulders the responsibility that performance based regulations place upon it.

By means of access to professionally qualified engineers, the construction industry has the tools in the toolbox to do the job right and the authors of this series of four articles hope to have achieved a 'call to arms' for Fire Engineers on some of the key issues which relate to whether, when and how these tools get used. As a case in point, readers of this article may find the IFE's response to the HSE consultation on proposed changes to CDM regulations of interest and which can be found on the IFE web site at <http://www.ife.org.uk/Fire-Research-Reports-and-Consultations>.

No one else is going to do this for us. The profession must remain vocal on these issues and get involved. Total Fire Engineering is what we want and work to make it to be. 🧯