
SAFETYMARK
CONSULTANCY SERVICES
THE FUTURE OF CDM AND CONSTRUCTION DESIGN RISK MANAGEMENT

GRENFELL TOWER FIRE

On 14 June 2017, a fire broke out in the 24-storey Grenfell Tower block of flats in North Kensington, West London just before 1:00 am BST; it caused 72 deaths

An Independent Review of Building Regulations and Fire Safety (the Review) was commissioned by the government and led by Dame Judith Hackitt, a former Chair of the Health and Safety Executive (HSE) and former President of the Institution of Chemical Engineers.

THE HACKITT REVIEW

The Hackitt Review report identified that:

- the current system of building regulations and fire safety is **not fit for purpose;**
- the system failure has allowed a culture of indifference to perpetuate; and
- a cultural change is required to support the delivery of buildings that are safe, both now and in the future.

HOW WIDE IS THE PROBLEM

Forward to Raising the Bar - Interim Report of the Competence Steering Group

Graham Watts OBE Chair, Competence Steering Group 16 August 2019

"It is also salutary to accept that it is not just residents' safety from fire spread in high-rise towers that should concern us.

Had the collapse of nine tonnes of masonry at Oxgangs Primary School, in Edinburgh (January 2016) happened on a different day, we might have been considering the deaths of schoolchildren arising from industry failures.

Significant concerns have also been raised by the collapse of the Nottingham City Car Park (August 2017) and the failure of large-scale concrete panels in several tower blocks."

COMPLIANCE VERSES RISK CONTROL

The Hackitt Report suggested that:

- Prescriptive regulatory frameworks such as the Building Regulation Approved Documents define the mechanisms by which the final output must be produced.
- These frameworks tend to assume that **compliance with the rules is equivalent to what is considered to be safe**.
- Regulatory frameworks that are overtly reliant on prescription may fail to provide the expected level of safety, because if this assumption is incorrect, the output will be compliant with the prescription, but not safe.

Safe and Compliant, should be, but are not always the same thing.

APPROVED DOCUMENT K
MAINTENANCE ACCESS AT HEIGHT

"Where people will use the stairs or ladders to access areas for maintenance they should comply with one of the following.

- *If access will be required frequently (e.g. a minimum of once per month): follow provisions such as those suggested for dwellings in this Approved Document (see Diagram 3.1).*
- ***If access will be required less frequently than once a month: it may be appropriate to use temporary guarding or warning notices**. The Construction (Design and Management) Regulations 2015 and the Work at Height Regulations 2005 give provisions for such measures."*

CDM 2015 "When preparing or modifying a design the designer **must** take into account the general principles of prevention and any pre-construction information to **eliminate**, **so far as is reasonably practicable**, foreseeable risks to the health or safety of any person."

BUILDING A SAFER FUTURE: REFORM OF THE BUILDING SAFETY REGULATORY SYSTEM

In May 2018 the Ministry of Housing Communities and Local Government in a consultation - Building a Safer Future Proposals for reform of the building safety regulatory system.

The review proposes:

- a **'new'** dutyholder regime for residential buildings of 18 metres or more:
  - Client
  - Principal Designer
  - Principal Contractor
- dutyholder roles in design and construction should align with those existing dutyholders identified under the CDM 2015;
- a safety case regime with project gateways, and
- a focus on fire and structural safety.

EXTENDING DUTYHOLDER ROLES TO ALL BUILDING WORK

CDM 2015 which clarifies accountability for health and safety on construction sites already introduce the concept of dutyholders across all construction work.

As we intend to model our approach to dutyholder roles after these regulations we are mindful that we should, where appropriate, align our requirements.

We are therefore considering whether we should introduce dutyholder roles, which provide greater clarity over accountability for building safety and compliance with building regulations, to all building work.

We believe that there are a number of benefits which could be realised by taking this approach. For example, having a consistent accountability framework for all construction work provides a clear operating environment to designers and contractors who may work on a mixture of different residential, commercial and civil projects.

DUTYHOLDER DUTIES

In identifying the responsibilities, the Government will place on dutyholders in design and construction, they have considered those which are already applied through the Construction (Design and Management) Regulations 2015 (CDM).

In addition to those that already fall to them through the Construction (Design and Management) Regulations 2015 (CDM), the Government propose that all dutyholders in the design and construction phase should, as a minimum, be required to do the following:

- Co-operate and share information with the building safety regulator;
- Ensure compliance with building regulations.
- Comply with specific regulatory requirements imposed upon them;
- Ensure they and the people they employ are competent (have the necessary skills, knowledge, expertise and behaviours) and only undertake work they are competent to do.

RAISING THE BAR - INTERIM REPORT OF THE COMPETENCE STEERING GROUP

The **Building a Safer Future** Steering Group on Competence published it proposals for an overarching system to oversee competence requirements for buildings in scope in August 2019. The proposals:

- identifies the types of professions that may be defined as building designers
- suggest a **building designer may fulfil the role of the Principal Designer (Fire);**
- **suggest a register of competent Principal Designers**, and Principal Contractors is held and maintained by the building safety regulator.
- call on Government to play its part by requiring that any company or individual working on a central Government construction project must meet the competence frameworks set out within the report; and
- urge local authorities and the wider public and private sectors to follow suit.

DESIGNERS

R47: Individuals wishing to be recognised via the competence framework for building designers must be a current full member of a relevant construction professional organisation; be subject to and adhere to a Code of Conduct and disciplinary procedures; and have the specified or relevant experience in HRRBs.

Typically, building designers may include the following roles:

- Architects
- Design technicians
- Building surveyors
- Architectural technologists
- Architectural technicians
- Engineers where not covered by other competency frameworks
- Building Engineers

WHO WILL BE THE PRINCIPAL DESIGNER (FIRE SAFETY)

135. The PD role on an HRRB should be a single suitably qualified 'guiding hand' …. The PD should be part of the role of the lead designer, who will often be an architect but should always be the designer with the most appropriate professional background for the project.

At gateway two, we propose that dutyholders should be required to provide their strategy for how they will comply with building regulations and manage and control safety by providing full plans and supporting documentation, which should include:

- **Full Plans produced by the principal designer** - detailed plans/specification of building works in respect of fire and structural safety and how these risks are being managed alongside the necessary specification in all other aspects of the building regulations;
- **3D digital model of the building produced by the principal designer**, covering the building 'as planned' including for example, the products to be used;
- **A Fire and Emergency File produced by the principal designer**

KEY PRINCIPAL DESIGNER DUTIES

- Plan, monitor & manage the pre-construction phase & coordinate matters relating to building safety to ensure that the project complies with building regulations.
- **Satisfy themselves that those involved in supporting** the Principal Designer have suitable skills, knowledge, behaviours, experience and where relevant, organisational capability.
- Take reasonable steps to ensure that Designers are discharging the duties and promoting the statutory objective.
- Assist the Client in meeting the requirements of gateway points including co-signing at the completion of works stage that to the best of their knowledge the work meets building regulation requirements.
- Develop and maintain a complete golden thread of information and contribute to an appropriate handover of information to the accountable person in occupation.

THE NEW SAFETY CASE APPROACH FOR MANAGING THE RISKS IN NEW BUILDINGS

The Building a Safer Future proposes that an accountable person has to make a **'safety case'** to the building safety regulator demonstrating that hazards have been identified, risks assessed and appropriate mitigation put in place.

It is proposed that the building safety case should:

- Provide the necessary information, in a structured way, concerning the hazards affecting the building;
- Be an argument that **goes beyond a risk assessment** and demonstrates that fire and structural risks, and any measures in place to manage those risks, are being managed so far as is reasonably practicable;
- Be supported by a body of appropriate evidence;
- Use plain language (to facilitate communication with those who need to understand the safety systems in buildings); and
- Be kept under constant review.

ENSURING SAFETY

No single points of failure

- Don’t use sprinklers to mitigate less compartmentation when failure of sprinklers will result in immediate non compliance.
- You need both so the failure of either will not lead to compliance.

Sign of to confirm compliance

- The Government want to hold somebody’s feet to the fire.

CIC REPORT TO CONIAN
FRIDAY 5TH JULY 2019

On Friday 5th July 2019 the Construction Industry Council [CIC] presented an inter-institutional report to the new HSE Construction Industry Advisory Network [CONIAN].

The report was prepared in response Russell Adfield, Head of the Construction Management Unit, HSE- addressing the APS Health and Safety Conference in London on 14th September 2016

'Professional institutions - eg. RIBA, ICE, IStructE, CIOB, RICS etc. MUST lead the development of standards for their communities'

Whilst I don't agree with much that is said in the report I agree with the following statements and believe that this is what the future will look like:

- *PD to concentrate on ALL design risk management issues & NOT just "Health and Safety".* **RIBA Training**.
- *With the right education, architects and engineers are well capable of* ***leading*** *the Principal Designer function.* **Report Summary**

CIC REPORT TO CONIAN FRIDAY 5TH JULY 2019

Writing off the use of a risk register by suggesting it contains *"Incomprehensible information"* however suggest a fundamental lack of understanding of risk management.

Construction needs many skills. The lack of fire safety knowledge is at last being understood.

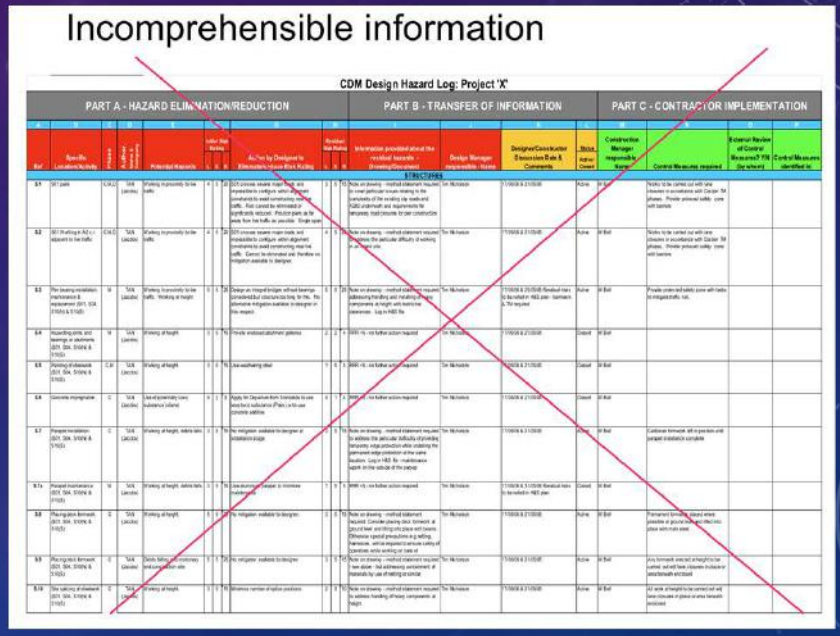
The two from my perspective that appear still to be least understood (and appreciated) are:

- risk management; and
- health and safety legal compliance.

There will also need for somebody to have the competence to prepare the safety case.

The lead des

igner should in my view be the Principal Designer and consider all design risks however they need good professional advice.



RISK MANAGEMENT METHODOLOGIES

- To date the management of design risk in the UK construction industry has generally followed the guidance given by the Health and Safety Executive [HSE] in the Approved Codes of Practice and Guidance for the various CDM Regulations.
- Many of the methodologies and some of the guidance conflate design risk management and CDM compliance as a means of tempering standards – the absence of prosecutions or enforcement notices does not necessarily mean that a solution is legally acceptable – although where there is a significant financial or aesthetic benefit associated with the solution it may in some minds justify accepting the risk.
- There are however many well documented methodologies that are appropriate and look at risk is a holistic way.
- It also should not be forgotten that a a safety case may need a formal safety management system to be implemented.

ISO/DIS 31000 COMPONENTS OF A RISK MANAGEMENT SYSTEM

ISO 31000 sets out a system that allows risk to be managed both within organisations and on projects. It requires:

- **Mandate and commitment** from the client or senior management team;
- **A framework for managing risk** that includes:
  - An understanding of the organisation/project and its context;
  - A risk management policy that sets out the objectives for and commitment to risk management [e.g. we want to be the best or we want to comply];
  - Integration of risk management in to the organisation's or project's processes;
  - Allocation of appropriate resources for risk management; and
- **Risk management to be implemented** at all relevant levels and functions of an organization as part of the organization's practices and business processes.
- **Monitoring and review of the framework**
- **Continual improvement of the framework**

BS 31100:2011 RISK MANAGEMENT: CODE OF PRACTICE

BS 31100:2011 is a supporting standard for ISO 31000

It provides practical and specific recommendations on how to implement the key principles of effective risk management as specified in BS ISO 31000.

BS 31010:2010 RISK MANAGEMENT: RISK ASSESSMENT TECHNIQUES

BS 31010:2010 is another supporting standard for ISO 31000.

It provides guidance on selection and application of systematic techniques for risk assessment. Described methods include:

- Brainstorming;
- Structured or Semi-structured Interviews;
- Preliminary Hazard Analysis;
- HAZOP;
- **Consequence likelihood matrix** [dismissed by the CIC report] **;** and
- Cost benefit analysis.

Not all methods described are relevant to construction design risk management but it proves that there are a number of ways of ways of assessing risk and more than one technique that can be used on a problem or project.

BUILDING INFORMATION MODELLING (BIM)

- It would however be remiss of me not to highlight the future use of BIM as a design risk assessment and risk management tool.
- BIM can be used to fly through a project and see issues that are hard to identify on 2D drawings.
- Hazards, residual risks and the H&S information can also be embedded in the model to provide information for those constructing maintaining and operating the structure.
- In the Building a Safer Future proposals it is suggests that it may be mandated that the golden thread of building information complies with Building Information Modelling (BIM) standards.
- All those working in design risk management clearly need to be up to:
  - be able to interact with BIM models;
  - manage data in accordance with BIM standards.

HEALTH, SAFETY AND FIRE LEGISLATION

- **Health and Safety at Work etc. Act 1974**
- **Fire (Scotland) Act 2005**
- Confined Spaces Regulations 1997 (S.I. 1997/1713)
- Construction (Design and Management) Regulations 2015 (S.I. 2015/51)
- Control of Electromagnetic Fields at Work Regulations 2016
- Control of Artificial Optical Radiation at Work Regulations 2010 (S.I. 2010/1140)
- Control of Asbestos Regulations 2012 (S.I. 2012/632)
- Control of Lead at Work Regulations 2002 (S.I. 2002/2676)
- Control of Major Accident Hazards Regulations 2015 (S.I. 2015/483)
- Control of Noise at Work Regulations 2005 (S.I. 2005/1643)
- Control of Substances Hazardous to Health Regulations 2002 (S.I. 2002/2677)
- Control of Vibration at Work Regulations 2005 (S.I. 2005/1093)
- Dangerous Substances and Explosive Atmospheres Regulations 2002 (S.I. 2002/2776)
- Electricity at Work Regulations 1989 (S.I. 1989/635)
- Fire Safety Regulations (Northern Ireland) 2010 (S.I. 2010 / 325)
- Fire Safety (Scotland) Regulations 2006 (S.I. 2006 / 456)
- Gas Safety (Installation and Use) Regulations 1998 (S.I. 1998/2451)
- Health and Safety (Consultation with Employees) Regulations 1996 (S.I. 1996/1513)
- Health and Safety (Display Screen Equipment) Regulations 1992 (S.I. 1992/2792)
- Health and Safety (First- Aid) Regulations 1981 (S.I. 1981/917)
- Health and Safety (Safety Signs and Signals) Regulations 1996 (S.I. 1996/341)
- Lifting Operations and Lifting Equipment Regulations 1998 (S.I. 1998/2307)
- Management of Health and Safety at Work Regulations 1999 (S.I. 1999/3242)
- Manual Handling Operations Regulations 1992 (S.I. 1992/2793)
- Personal Protective Equipment at Work Regulations 1992 (S.I. 1992/2966)
- Pressure Systems Safety Regulations 2000 (S.I. 2000/128)
- Provision and Use of Work Equipment Regulations 1998 (S.I. 1998/2306)
- Regulatory Reform (Fire Safety) Order 2005 (S.I. 2005/1541)
- The Ionising Radiations Regulations 2017 (S.I. 2017/1075)
- Work at Height (Amendment) Regulations 2007 (S.I. 2007/114)
- Work at Height Regulations 2005 (S.I. 2005/735)
- Work in Compressed Air Regulations 1996 (S.I. 1996/1656)
- Workplace (Health, Safety and Welfare) Regulations 1992 (S.I. 1992/3004)

CASE LAW

You need to know the case law to be able to interpret legislation correctly.

"'Reasonably practicable' is a narrower term than 'physically possible' … a computation must be made by the owner in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) is placed in the other, and that, if it be shown that there is a ***gross disproportion*** *between them – the risk being insignificant in relation to the sacrifice – the defendants discharge the onus on them."*

Court of Appeal: Edwards v. National Coal Board, [1949] 1 All ER 743

Aesthetics is not in my opinion a justification for a lower level of risk control.

CDM 2020

- Integration of CDM (Health and Safety) 2020 and CDM (Fire) 2020?
- Register of Principal Designers (Health and Safety) ?
- List of approved design professions (Health and Safety)?
- Competency Standards for CDM 2020 specified by the Competency Council?
- Duty Holders to be Chartered Construction Professional (RIBA, RICS, etc.)?
- H&S / CDM Advisers to be:
  - Chartered Health and Safety Professional? or
  - NEBOSH Diploma / Post Graduate Diploma?or
  - NEBOSH Certificate in Construction Health and Safety?or
- Fire safety advisers to be:
  - Fire Chartered Fire Safety Engineer? or
  - CFPA Europe Diploma in Fire Prevention? Or ?

RAISING THE BAR

Russell Adfield, Head of the Construction Management Unit, HSE- addressing the APS Health and Safety Conference in London on 14th September 2016

'Professional institutions - eg. RIBA, ICE, IStructE, CIOB, RICS etc. MUST lead the development of standards for their communities'

Is it time for the APS to lead by example?

SUMMARY

The Building a Safer Future proposals recommend a scheme for buildings in scope based upon CDM 2015 with more robust competency requirements. It is possible / likely that the CDM 2020 review will fall into line with these proposals.

It is logical and appropriate that the lead designer is the Principal Designer however to suggest they can do this without support in risk management and health and safety compliance underplays the complexity of both areas on knowledge.

In my opinion those providing construction health and safety / risk management advise:

- who do not have formal qualifications at an appropriate level need to look to obtaining them;
- who do not already have fire safety knowledge perhaps need to look to upskill;
- need a better understanding of the recognised risk management standards and their application.

ANY QUESTIONS

SAFETYMARK
CONSULTANCY SERVICES