By design not accident

15 February 2017

Paul Bussey explains the rationale for doing CDM Differently

The most controversial and significant change made in the Construction (Design and Management) Regulations 2015 , or CDM Regulations, was the creation of the new principal designer (PD) function, intended to match during pre-construction phases the role of the principal contractor, who is in control during project execution. The PD, unlike the now superseded construction, design and management coordinator (CDMC) function, is not generally an individual but a corporate role, which should ideally be executed by the 'designer in control of the pre-construction phase', according to the regulations.

The Health and Safety Executive (HSE)?s long-term intention is to have active lead designers who already work on the project carrying out their own duties but also taking on the CDM integration of other designers. For highly engineered projects such as nuclear power stations, pharmaceutical factories or infrastructure, it makes sense to appoint a PD who has the required skills, knowledge and experience, as indeed it does on architectural projects, to discharge the complex mix of aesthetic and technical designer duties.

Overzealous misrepresentations

However, largely as a result of overzealous misinterpretations of the 1994 and 2007 CDM Regulations by certain sectors, designers have been discouraged from taking on the responsibility of a health and safety role. The perception of a tick-box culture has subverted something intended to be embedded in the day-to-day architectural process into a risk-averse, bureaucratic and external role.

The position of CDMC did not actually constitute a creative design role, because it largely involved challenging designers? proposals and asking for designer risk assessment documents, which were then simply coordinated into larger spreadsheets. The design complexity of other significant factors was subsequently lost among myriad routine risks and the frenzy to identify the safest solution.

This approach has been fuelled by misunderstandings of the General Principles of Prevention and the Working at Height hierarchy, whereby safety procedures intended for manufacturing and construction work have been misinterpreted in the architectural design process. Thus the need to eliminate risk has been assumed to mean the avoidance of unusual or new design concepts because they are deemed too unsafe. This misconceived reduction of risk where it cannot be eliminated has led to a continual diminution of the design intent to achieve the perceived safest solution.

Rigorous training

This unintended consequence has been exacerbated by those who have painted designers as arrogant and disdainful of occupants? and operatives? health and safety on their projects. The fact that architects undergo rigorous academic, ethical and professional training for a minimum

of 7 years, including a proportionate amount of CDM and health and safety training, is totally missed by these critics.

Professional architects have to achieve a very detailed understanding of design, including structural and services integration, as well as an awareness of sustainability, town planning and Building Regulations' requirements and a huge array of other skills such as computer-aided design and building information modelling.

Of even greater importance, though, is the field of aesthetics, which is generally a mystery to the other design team members, and includes the integration of all the above factors into a cohesive and visually appropriate composition. Architects cannot, of course, be experts on all these other design issues but need an overview of each as well as an understanding of their own limitations. These gaps can be filled by additional CPD or training, or proportionate advice from external experts.

CDM Differently

CDM Differently is an initiative based on the thinking of Australian academic Sidney Dekker. It has been developed in collaboration between senior designers and practitioners from the Royal Institute of British Architects (RIBA), the Institution of Civil Engineers , designers and practitioners, including Tony Putsman, Vice-Chair of the Construction Industry Council , and the author, all of whom have considerable health and safety expertise, experience and training.

It is intended to be a common-sense, intuitive and collaborative process to integrate CDM into architectural projects, and can be carried out practically by professionally qualified architects with sufficient skills, knowledge and experience, as recognised by the RIBA, with additional PD training if considered necessary.

In the context of an architectural project, CDM Differently encourages the lead, active designer to incorporate the significant, project-specific health and safety and CDM issues into the creative design concept right from the start.

Hazards need to be identified early and recorded on site drawings, where they should be clearly highlighted among all other details. There should also be strategic briefing input on these hazards from relevant parties, including the client, statutory authorities and other consultants. With an understanding of both the site infrastructure and the team, a conceptual, architectural design can start to evolve, and the significant design issues can be identified and overlaid.

Misconceived reduction of risk where it cannot be eliminated has diminished the design intent of achieving the safest solution

The combination of site knowledge, client brief and architectural aspirations are synthesised by the team into a design that integrates all these factors and CDM issues, to ensure that the risk level for the project is tolerable. This process should be proportionate to the scale and complexity of what are perceived to be the significant health and safety risks, not counting commonplace construction risks.

It is recognised that some large projects have relatively simple risk profiles, whereas certain smaller projects face more complex issues. The reverse is of course possible as well, but it is for the project team to spend a proportionate amount of time and effort avoiding, minimising or controlling significant risks and recording the key issues in an appropriate manner.

To ensure clear information and enable collaboration, CDM Differently discourages too much narrative detail in favour of a combination of annotated drawings, sketches, images, photographs and diagrams, which together clearly explain the significant CDM issues and their context to all project and third-party personnel.

The tolerability of each significant risk is established and noted for future reference during redesign, revisions and value engineering, maintenance or refurbishment phases, or for third-party use in the event of a CDM review, audit or HSE inquiry. This procedure and the document together encapsulate the legal processes of 'reasonable foreseeability and practicability' required by the regulations and, if these are properly followed and recorded, are acceptable to the HSE and the courts in the event of an accident or potential prosecution.

The HSE recognises that while designers can help to avoid and minimise risks, these cannot ever be entirely eliminated and accidents can still happen. Proof that the team has gone 'as far as reasonably practicable', is, however, sufficient.

This creative process is documented in Healthy design, creative safety , a report from the HSE , RIBA and the University of Sheffield published in 2012 and CDM 2015: A Practical Guide for Architects and Designers , written by the author and published last year. Both of these encourage excellent design with proportionate provision for health and safety.

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Further information

- Related competencies include Health and safety , Legal/regulatory compliance
- This feature is taken from the RICS *Building surveying journal* (December 2016/January 2017)