



# HEALTH AND SAFETY SUMMIT 2005

## Specialist Engineering Contractors Group

The members of the SEC  
Group are:

Association of Plumbing  
and Heating  
Contractors

British Constructional  
Steelwork Association

Electrical Contractors'  
Association

Heating and Ventilating  
Contractors' Association

Lift and Escalator  
Industry Association

SELECT

## THREE SPECIFIC ACTIONS FOR SUMMIT 2005

### 1 INTEGRATING SPECIALIST ENGINEERING DESIGN TO EFFICIENTLY MANAGE HEALTH AND SAFETY RISKS

**Problem:** The lack of an integrated design process (involving all key (designers) is a significant cause of accidents in construction.

**Solution:** Design gateways to facilitate a team approach to the management of health and safety risk in specialist engineering design.

- 1.1 One of the most important recommendations in **Accelerating Change**<sup>1</sup> was that the industry should deliver its product through the use of integrated project teams. Integration of the delivery processes in the industry would result in a significant improvement in health and safety performance.

*"Through integration of the supply team, pre-planning can allow 'designing in' for health and safety and designing out certain risks, (eg falls from height)." [para 6.10]*

- 1.2 There is substantial evidence that failure to integrate the design process has had an adverse impact upon the management of health and safety risks.

*"Of all fatal accidents on construction sites, as many as 60% can probably be attributed to choices made before the work on site began. Key factors relating to health and safety include design-led safety considerations (or the lack of them)..."*

The above statement was taken from a consultation document issued by the Built Environment and Transport Foresight Panel and published by the DTI in 2000. This document added:

*"The efficiency and safety of projects is dependent upon the 'quality' of the design and procedures available at the start of construction. Liaison between designers and contractors has traditionally been poor .... "*

- 1.3 The design process is fragmented. It is a process that is shared between consultants, contractors and manufacturers but because of contractual and insur-

<sup>1</sup>Accelerating Change represents the improvement agenda for the construction industry. It was launched by Sir John Egan in September 2002.

<sup>2</sup> The SEA is a 'macro' supply chain alliance of consultants, contractors and manufacturers. The members of SEA are:

Association of Consultancy and Engineering

Building Services Research and Information Association

Federation of Environment Trade Associations Limited

The Chartered Institution of Building Services Engineers

Specialist Engineering Contractors Group

<sup>3</sup> A similar exercise has been carried out in the United States in regard to structural steel construction. The American Council of Engineering Companies (representing steelwork contractors) and the Council of American Structural Engineers (representing consulting engineers) has produced guidance on coordinating design activity within structural steel.

ance requirements there is little communication between them. But, the process is iterative. It demands a dialogue between **all** designers – whether consultants, contractors or manufacturers – to develop solutions that eliminate or substantially reduce health and safety risks.

- 1.4** Some recent research has reinforced the point that fragmentation in the delivery process is a significant factor in construction accidents. In 2003 Loughborough University and UMIST produced a report for the Health and Safety Executive entitled: **"Causal Factors in Construction Accidents"**. This research was based upon an analysis of 100 construction accidents:

*"It was judged that up to half of the 100 accidents could have been mitigated through a design change ....."*

- 1.5** Support for the findings in the Loughborough/UMIST research has recently come from a new report, Achieving Better Safety and Health in Construction, published by the European Agency for Safety and Health at Work. This report reveals that up to 60% of the accidents on Europe's construction sites and over 25% of the fatalities could have been avoided by more careful design, planning and procurement before construction begins. The report was based upon 16 case studies drawn from 14 EU member states.

- 1.6** A desktop analysis of 70 accidents was presented by HSE to CONIAC on 27 March 2003. It concluded as follows:

- In 40% of the incidents designers had clearly not discharged their duties;
- In 25% of the incidents, designers had hardly or not fully discharged their duties

- 1.7** The design team – whether they be consultants, contractors or manufacturers – is rarely a team. Often there is no common terminology understood by all designers, let alone an appreciation by all designers of the activities that constitute the design process they are involved in. If consultants, key contractors and manufacturers are to have a robust dialogue and act as a team to pre-plan the project and better manage the design process, each party should be better equipped to engage in this process.

- 1.8** The Specialist Engineering Alliance (SEA)<sup>2</sup> has already initiated a project that aims to facilitate design team integration so far as the delivery of engineering services installation is concerned<sup>3</sup>. This project is aimed at developing a common terminology and, more importantly, at defining the activities that make up the design process in order to produce clarity within the design team of each team member's responsibilities. This is necessary for effective and efficient teamworking. Those involved in this exercise are working closely with a CIC team developing a new consultant's contract which is adopting a common approach to defining project stages and generic design activities within each of the stages.

- 1.9** The proposal, therefore, is that this project - now being carried out under the banner of the Specialist Engineering Alliance - is expanded to encompass health and safety risks. **The health and safety implications for the relevant tasks (within each generic design activity) will be identified. In effect the design tasks will provide the gateways for managing health and safety risks.**



HEALTH AND SAFETY  
SUMMIT 2005

THREE SPECIFIC ACTIONS  
FOR SUMMIT 2005

---

**1.10** This will enable any party carrying out any element of the design to have a better appreciation of the health and safety risks inherent in carrying out the relevant design task. This is illustrated in the sample matrix in the appendix. The matrix is concerned with the concept/preliminary design stage and the tasks are associated with the **activity** of *electrical design* at **concept** stage. Against the tasks there will be identified the health and safety issues that will require consideration by the design team.

**1.11** This project would provide a number of key benefits:

- It will provide a systematic and structured approach to the management of health and safety risks during the design.
- It will enable effective management of health and safety risks in respect of the design interfaces.
- It will provide a checklist for each party involved in design delivery – consultants, contractors and manufactures – that will help ensure that the “ground has been covered”.
- It will encourage a productive dialogue between the parties delivering the design.
- For all the above reasons, it should lead to earlier involvement of all parties contributing to the design process especially contractors, manufacturers and facilities management specialists.

**1.12** Moreover, this project would achieve one of the key “deliverables” in *Accelerating Change*. Paragraph 5.16 states:

*“At each gateway there should be a checklist for assessing the relevant health and safety risks associated with the critical stages in the planning and design process. At each stage the integrated team should be required to certify that they have – as a team – considered the health and safety risks in order to ensure that the facilities currently developed will be safe to build and safe to maintain and operate.”*

# Appendix

## Design Gateways for Managing Health and Safety Risks in Respect of Specialist Engineering Works

<sup>1</sup> This matrix is taken from the current draft of the BSRIA-led SEA project on allocating design activities with an integrated specialist engineering design team.

<sup>2</sup> The health and safety issues should be considered by the team but a critical issue to be addressed within each of the listed tasks is whether the team (as constituted) is best able to address the relevant risks or whether other team members need to be appointed to inform and add value to the dialogue.

SAMPLE MATRIX <sup>1</sup> Concept/Preliminary Design Stage			
Design Activity (Tasks to be completed)	Party Responsible for Activity	Health and Safety Issues to be Considered <sup>2</sup>	Comments
<b>ELECTRICAL DESIGN</b> (Tasks to be completed) Determine electrical systems philosophy (use of natural light, degree of system integration, redundancy, life-cycle)		To be listed	[Identify problems with certain design solutions/options as far as health and safety is concerned; is there a need to appoint at this stage additional team members such as FM contractor or M&E contractor]
Primary design criteria <ul style="list-style-type: none"> <li>▪ Small power (lighting loads, equipment levels)</li> <li>▪ Level of occupant control</li> <li>▪ High voltage (lifts, mechanical plant distribution.</li> </ul> Calculate zoned loads for small power & lighting (rule of thumb)			
Determine locations/sizes for high voltage systems (lifts, transformers)			
Calculate loads for high voltage supply (rule of thumb)			
Review alternative electrical systems.			
Establish indicative plant and riser sizes for electrical systems and plant room/switchgear locations/sizes			
Select preferred concept design			

## 2 HEALTH & SAFETY PRE-QUALIFICATION SCHEMES

**Problem: Proliferation of health and safety pre-qualification schemes and standards**

**Solution: A widely accepted set of pre-qualification criteria - the benchmark for clients and contractors supported by the HSE.**

- 2.1** SEC Group acknowledges the business drivers behind pre-qualification assessment of contractors' health and safety (HS) capabilities. However, the proliferation of HS pre-qualification and related schemes is a major concern. For contractors and others, this proliferation:
- Raises costs and complexity
  - Creates uncertainty about which scheme is best suited to various clients and projects
  - Leads to differing standards
  - Works against the message that health and safety adds value to business
  - Reinforces negative stereotypes about the direct and indirect cost of health and safety.
- 2.2** Clear, practical guidance on generally acceptable pre-qualification criteria will help all parts of the construction industry to comply with CDM and other HS legislation, and improve the cost effectiveness of assessing, and delivering, HS performance.
- SEC Group is working with other key players (e.g. HSE, MCG, Construction Confederation, CHAS, insurers) to establish widely accepted core criteria for pre-qualification.
- 2.3** SEC Group has already produced draft core criteria. These are compatible with current MCG and CHAS guidelines. **SEC Group is not setting up a new pre-qualification scheme.**
- 2.4** We need the active support of the HSE for these criteria, and believe it is essential that reference to them is included in the Approved Code of Practice to the revised CDM Regulations.
- 2.5** This is an active example of collaboration between leading trade bodies and other stakeholders in the construction and allied sectors, aimed at reducing barriers to effective health and safety management. Small businesses in particular should benefit from the widely accepted core pre-qualification criteria.

## 3 SITE SAFETY ACCESS CERTIFICATE

**Problem:** Firms within SEC Group's constituent associations have often reported that they arrive on site to find that the party responsible for managing the site has not fulfilled its health and safety responsibilities to the contractor and its workforce.

**Solution:** Developed by the SEC Group's Health and Safety Task Group, the Site Safety Access Certificate is designed as a management tool for contractor and the principal contractor responsible for managing site safety.

- 3.1** We must improve the level of communication between those having overall responsibility for managing site safety and the various trades using the site over different periods. Often the necessary site information is not made available (eg little or no induction briefings being provided to alert contractors and their workforces to specific site hazards and risks) or that the area(s) in which they are expected to work has identifiable hazards and risks (eg other work being carried out in the area or lack of adequate access lighting). This picture is compounded by the fact that each trade or activity coming on to site may have different requirements and concerns relating to health and safety.

*Workplace factors, most notably poor housekeeping and problems with the site layout and space available, were considered to have contributed in half (49%) of the accident studies."*

*("Causal Factors in Construction Accidents",  
Loughborough University/UMIST research report, 2003)*

- 3.2** The Site Safety Access Certificate – developed from an existing initiative of the British Constructional Steelwork Association - will act as an aide memoir to help the contractor and the main/principal contractor to identify safety hazards and risks and provides a structured feedback mechanism for relaying this information back to the main/principal contractor. It enables the contractor to list areas/issues of concern, to quantify them in terms of hazard and risk and, where necessary, advise that work cannot commence until the area(s)/issue(s) of concern has been resolved or otherwise managed.
- 3.3** The use of this Certificate will help reinforce and, more importantly, activate a key message of the Strategic Forum that people should refuse to enter unsafe sites. Furthermore, SEC Group and its associations will promote the use of this Certificate within the engineering sector and will be expecting support from the UK's major contractors. SEC Group undertakes to monitor the use of the Certificate and provide feedback to the HSE and the Forum on progress. A copy of the Certificate is available in the documentation for the Summit.

**The Site Safety Access Certificate will be formally launched at the Summit.**

*For further information on all aspects of SEC Group and its activities contact:*

**John Nelson**

Executive Secretary

**SPECIALIST ENGINEERING  
CONTRACTORS GROUP**

34 Palace Court

London

W2 4JG

Tel: **020 7313 4819**

Fax: 020 7727 9268

E-mail: [contact@secgroup.org.uk](mailto:contact@secgroup.org.uk)

Website:

[www.secgroup.org.uk](http://www.secgroup.org.uk)

112131415161

