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HEALTH AND SAFETY COMMISSION

CONSTRUCTION INDUSTRY ADVISORY COMMITTEE (CONIAC)

Harnessing designers' skills to deliver a healthier and safer construction industry - A new way forward

Summary

This paper develops ideas from a recent industry 'Think Tank' convened to resolve the way forward to ensure designers play their full part in securing construction health and safety. As such, it builds on the earlier CONIAC contributions and members are asked to endorse the suggested way forward and commit to an action plan – see Paragraphs 27 and 28.

Issue

1. Meeting M1/2003 was focused on issues of improving the industry's health and safety performance through good design. The five complementary papers presented, and the ensuing debate, helped crystallize the need for a new way forward if the full benefits of designer contributions are to be secured.
2. Building on the significant CONIAC contributions, the issue addressed in this paper concerns what needs to happen, to what end, involving who and when.

Timing

3. Action plan for consideration at meeting M2/2003 as a follow-up to the important CONIAC discussions / papers on designer issues at meeting M1/2003.

Background

4. At meeting M1/2003 five complementary papers examined issues for improving the industry's health and safety performance through good design, covering:

- Responses to the Discussion Document relating to design issues
- The role of integrated teams in securing health and safety benefits of good design
- Best practice design examples
- The role of professional education and CPD
- Recent HSE work with designers.

5. Shortly afterwards, findings from the Construction Division's Designer Initiative were published in which on-site meetings were held with the planning supervisor and the designer with lead responsibility for work-at-height issues. These revealed, for example, that many designers lacked knowledge of their CDM responsibilities, with significant numbers failing to consider the practicalities of construction and maintenance. Risk assessments in many cases were poor and responsibility for removing design-generated risks had been abdicated to the principal contractor. It appears that designers, although surprised by the focus, had welcomed the opportunity to find out more about what was expected and whether their efforts were adequate.

6. The background to this paper is, therefore, a significant disparity between what is expected of 'good' design and the generality of current practice. Over and above this, however, is a strong desire for the power of good design to be exercised to improve safety and health for those engaged in construction activity.

7. In achieving change in any context, the status quo can sometimes be a constraint to imaginative thinking. To break these shackles, a 'Think Tank' was facilitated on 19 May 2003 involving a diverse group with design interests, experience and expertise from throughout the construction supply chain. The participants are listed in Annex A. All gave their time freely and enthusiastically and their contributions are gratefully acknowledged. No one knew all the other participants previously – by the end of the day they were in no doubt about each other's views. This paper assimilates their vision.

The process

8. The Think Tank was professionally facilitated to release new ways of thinking and to prevent the outcome being pre-determined. Annex B records the sequencing from the generation of ideas through to the formulation of loose action plans. The charge to the Think Tank participants was positive and action orientated, namely:

“To determine what needs to happen to enable designers to make a full contribution towards ensuring there is a healthy and safe environment for construction work over the whole life of a project.”

9. Conjuring up a vision of the industry where all those with a design role do indeed play their full part in minimising health & safety hazards and risks, the key features enabling ‘good’ design were first identified and then assimilated under emerging themes. These were:

- Communication system
- Culture change
- Designers as persuaders add value
- New professionalism
- Team working.

10. Ideas and comments about how to make these a reality spread across ‘talking walls’. These observations were then integrated to determine the key elements and their attributes which action plans in each area (subsequently outlined) would need to deliver.

11. Having forcibly separated the future vision from current practice and then re-traced the enabling steps, a convincing action plan emerges. Despite the unfettered approach, the output has resonance with elements from the scene-setting CONIAC papers which thus provide some endorsement for the recommendations emerging.

12. Furthermore, whilst the Think Tank sub-group discussions ranged across diverse issues, the action plans ultimately contained the following consistent elements underlining their fundamental importance:

- **Pull** from the 'high ground' or those who shape the industry operating environment
- **Commitment and ownership** from within the design community
- **Push** from improved knowledge and understanding.

13. Any one of these would deliver improvements eventually, but parallel progress in all three will provide gearing to the individual contributions.

14. The following paragraphs define these elements in terms of their genesis from within the Think Tank and the steps involved in delivery.

The solution

15. The translation of the early themes from Paragraph 9 and the outline action plans at the end of Annex B demonstrate a tautology that can be viewed positively. According to the Think Tank participants, a key step for **designers as persuaders to add value**, for example, is 'culture change'; **culture change** draws on the benefits of 'longer term partnering to improve trust'; **team working** needs 'ideas to be promoted by professional bodies'; the **new professionalism** is looking for these bodies 'to provide a focus for industry action'; to facilitate **communication** a 'website for anonymous reporting' is suggested; for **designers to be persuaders** 'continual improvement and learning' is a key

16. There is therefore a continuum, with the emergence of **designers as persuaders adding value** reflecting a different **culture** and a **new style of professionals** working in a construction **team environment** in which informed **communication** is the norm.

17. As an outline this reflects a good practice which is not restricted to health and safety. This is not a problem; it is an advantage and ensures health & safety is not merely an adjunct. It means other benefits derived from clarity, efficiency, ownership and integration will help in effecting change and it is a framework within which health and safety considerations readily form an inherent part. The key is to ensure they form part of the language of communication at the earliest opportunity.

18. Paralleling the three areas for action in Paragraph 12 are three key questions:

- **Where is the driver?** Underpinning the law is the premise that directing the resources of nature for the use and convenience of mankind (ref. ICE) should not, so far as is reasonably practicable, jeopardize the safety or health of those engaged in the construction process or subsequent use. One of the stages affecting the degree of risk is design, but the health and safety consequences are generally borne by others. Largely it is their clients' drivers which influence designers. Commercial/time pressures are clear and the way buildability and productivity have been embraced follow. The rapid rise of sustainability as a design issue also bears some comparison, however. Within a decade, environmental concerns internationally have translated through regulation and social responsibility to becoming a key design issue and an imperative for through-life consideration demanded by clients and embraced by designers. Respect for people and the culture change envisaged for construction as a whole, may provide similar conditions for fixing health & safety considerations on the designer's agenda.
- **Where are the skills?** Clearly the skills are held by the designers themselves who, as a matter of course, work to balance multiple constraints and develop optimal designs. However, devising inherently better solutions demands knowledge of the construction products and processes available which is not necessarily within the designer's purview, particularly in respect of health & safety potential. For most professions, excellence is not about having all the answers taped, it is about recognising when better information is needed and knowing who to ask or where to look.
- **Where is the knowledge?** Constructors, maintainers, suppliers, remedial designers, umbrella groups etc all, in the course of their work, encounter the consequences of design decisions. Very often the designer is remote by this stage and the remaining team uses its skills to adapt and deliver. If the health and safety implications were known by designers, there might be the potential to devise alternatives or at least to ensure the lessons were carried forward to future projects.

19. Action needs to be focused on resolving the discontinuities between the **knowledge** about design implications, the **skills** to deliver better designs and the **drivers** affecting the scope and conduct of design activity.

20. Designers without perceiving a sufficiently clear driver, and particularly without the necessary knowledge or information, are unlikely to channel their skills to the fullest extent possible to improve construction health & safety. Designers with access to information and with the encouragement and support of clients can engage with the industry agenda in applying their skills to play their part in improving health and safety.

21. HSE's designer initiative has clearly worked well in raising the awareness of designers at corporate and individual levels in terms of their regulatory responsibilities. Industry actions proposed here are complementary and provide a far-reaching response.

22. The following paragraphs consolidate the recommended actions to this end emerging from the Think Tank. The subsequent section explains the role and justification for each.

Next steps

23. For the ultimate vision of designers making their full contribution to construction health and safety per Paragraph 8 to be realised, a series of actions is recommended with the following inter-dependent aims:

- To ensure knowledge and information about health and safety hazards introduced or eliminated through design are spot-lighted by all stakeholders at industry, project and company levels.
- To instill designers with the recognition of the important contribution they can make as part of the construction team by using their creative and technical skills to improve aspects of the safety and welfare of workers.
- To engage those with influence in shaping the industry and its operations, such as trade bodies and clients, so that they exert influence to ensure health and safety is considered to the fullest extent possible through design.

24. It should be clear that the elements of teamworking, communication, culture change, a new professionalism and designers as persuaders are an integral part of these aims.

25. The recommendations seek to encompass the circumstances affecting designers or those taking a design role in the broadest sense irrespective of project

scale or type. There may therefore be more formal integrated teams appropriate for large projects where the principles within the recommendations can be developed further.

26. If the results of the HSE designer initiative are indicative of the incomplete designer engagement with the health and safety agenda, then some action is needed to precipitate a step change. This will require resource but the recommendations are designed to be self-perpetuating beyond the initial injection and to provide a resource for multiple purposes.

27. In summary the **key elements of the action plan** proposed are:

- **Develop a forum** with a managed web-based resource focused on achieving healthier and safer construction through design:
 - To promote dialogue amongst stakeholders throughout the construction industry 'team' from facilities managers to workers or their representatives and including designers and the HSE
 - To promulgate understanding and awareness of design issues
 - To provide information, statistics, insight and examples of 'ways and means' that designers can use
 - To consolidate information about benefits or costs and contractual / project arrangements which have helped / hindered
 - To act as a catalyst for designer action and development of key messages for designer (and others) as persuaders
 - To provide a link to related sites and activities
 - To provide an education resource (whether under-graduate or CPD) and good practice evidence to translate into guidance
 - To promote teamworking and cross-boundary communication and learning
 - To enable the production of regular electronic newsletters
 - To provide a library of best practice exemplars
 - To act as a repository for commercial and technical evidence to meet designers needs and inform those with influence over industry practice.
- **Engage a range of stakeholders** (including but not limited to designers) to kick-start the advocacy of the added value that designers can bring to construction, initially and through the maintenance life-cycle, in terms of worker health and safety:
 - To demonstrate to others, such as clients, the benefits including and beyond health and safety
 - To demonstrate the integration and communication within the supply chain and the dividends this pays
 - To provide a positive response to the negative press
 - To launch the forum

- To illustrate the positive steps in terms of, for example, committing to recording corporate knowledge, co-ordinating CDM reviews in a team environment etc to inspire others
 - To provide an initial resource and key messages for stakeholders
 - To form the basis for articles / papers across the industry
 - To provide a baseline for follow-up 12 months hence to demonstrate progress and maintain momentum.
- **Lobby stakeholder bodies and influential construction parties** such as Institutions and Government clients, Planning departments, Building control etc:
 - To demonstrate the benefits of integrating health and safety considerations in life-cycle design
 - To confirm the significance and permanence of the issue
 - To demonstrate the circumstances conducive to good design
 - To elicit a committed response to take action
 - To confer an industry demand, via the Institutions, for construction design graduates with a 'good health & safety is good design' mindset and capabilities.

28. In order for these recommendations to be pursued some **key commitments and decisions** need to be made:

- Agreement that this integrated approach tackling practical information, designer commitment and wider stakeholder interests offers the way forward, comprising:
 - Broadly-based forum engaging leading advocates of health and safety by design
 - Resources (including web-based) to support and engage those with design interests across the industry and at all levels
 - Active promotion of the benefits of good design to those who shape current and future construction practice.
- Commitment to project managed execution and delivery, to secure and demonstrate early benefits, providing a firm foundation for future progress
- Resolution on the 'home' for this industry focus:
 - Needs to be design 'in context' – not designer isolated
 - Needs to be integrated sensitively and to mutual benefit alongside complementary initiatives
 - Can form an integral part of modernising construction.
- Identification of the champion(s) and resource to take the actions forward:
 - To detail the plans (by M3/2003)
 - To establish commitments / contributors from stakeholders
 - To identify full details for target audiences.

Argument

29. The full benefits of designers, skilled and informed to improve construction health and safety, will only be reaped once clients and other influential bodies recognise and value the role. Equally, engagement and commitment of clients will have limited impact whilst the knowledge and commitment amongst the design community is lacking. The recommended actions are therefore not sequential but must proceed in parallel within a co-ordinated plan.

30. The forum should **not** be a designers' forum although it may in part offer a **communication** focus for designers. It should offer a **virtual integrated team resource** for all construction stakeholders irrespective of company size or the contractual arrangements under which projects are being undertaken.

31. By first assimilating evidence, the case for **change** builds itself and the ability of designers to play their full part for the industry unfolds.

32. It will provide a resource for training, education and CPD (as called for in response to the DD) and offers a potential resource and vehicle for practical guidance utilising the experience and knowledge of all parties.

33. Structured output from this resource will help demonstrate the **new professionalism** and provide material for **designers as persuaders** whether through industry bodies or directly with clients.

34. Therefore, the web-based medium should consolidate facts, support material and experience about the ways in which alternative design solutions can improve the health and safety of construction activity. Integration with existing initiatives is essential; pan-industry association of the host should be greater than for any stakeholder group. The timing is right **now** and the site must be actively primed and promoted.

35. The forum needs to encompass basic information about the legal position, existing guidance, links to related initiatives, statistics, relevant research findings etc. However, focus on a bulletin board / discussion forum for the construction industry to draw in observations, good and bad, about design related issues so that learning can be shared with comment invited must be central. Whilst health and/or safety effects of design are the principal theme, it will serve industry best by identifying contractual arrangements as well as cost or timing issues, whether positive or negative, with a bearing on future courses of action. There should be stimulus for contributions to

inform others, to prompt constructive suggestions, to promote debate on topical themes and, above all, to encourage a sense of enquiry with others in the (real life) supply chain on ongoing or recent projects.

36. Active management is needed to prompt and synthesise emerging issues and to ensure these are regularly communicated to inform clients, trade bodies and other industry shapers. A target might be set to deliver guidance drawing on early inputs - industry helping itself – thereby underlining the forum as an active resource and one to which there is some urgency to contribute. The resource implications and the reflection of a newly defined professionalism for designers, suggest integration / collaboration with ongoing industry initiatives under, for example, CBPP, M4I, CIC, SiD etc might be considered.

37. The launch must have a significant profile but be relevant, with practising designers, construction clients, facilities managers, manufacturers, large contractors, small contractors and workers having their say about why better information and feedback can only help in improving design. A key theme must be the demonstration of advocacy of designers for the new professionalism within the construction community to inspire and encourage other designers, by example (or, indeed, through a sense of competition). Short contributions from recognisable parties can form the basis for articles and papers across the professional / trade press, as well as for fliers to alert and engage stakeholder groups and construction clients.

Conclusion

38. The context for this change is an industry raising its game, looking to improve its business processes and with respect for the people engaged through the lifecycle. Teamworking is emergent and whilst it is not an appropriate pre-condition contractually within these recommendations, the principles and recognition that it is not a designers' problem to be solved (or indeed solvable) in isolation are encapsulated in the way forward.

39. Action must grasp the moment. Disparate actions could require considerable effort or deliver little impact. Fundamental changes to industry structures could be slow to engage and deliver. The communication and teamworking embodied within the recommended action can happen now. They will underpin a cultural change,

from the outset enabling a new professionalism with designers as persuaders adding value and improving construction lifecycle health and safety. Designers have a hunger and readiness to act – follow through to tackle the issue to the benefit of the industry without pillorying designers is essential.

Action

40. CONIAC members are invited to:

- Note this paper
- Endorse the areas for action
- Discuss the approach and offer contributions from their knowledge and experience to strengthen, refine or augment the recommendations
- Assign actions and agree a timetable
- Adopt an agenda item for M3/2003 to review progress.

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Annexes

Annex A Think Tank participants and their aspirations
Annex B Think Tank output
Annex C Full Think Tank Output

Annex A – Think Tank Output

Participants and their affiliations are listed below. Together they represented the full spectrum of construction design interests.

Participants

Michelle Barkley	Chapman Taylor
Liz Bennett	Habilis, Chair ICE H&S Board
Robert Bradley	Waterman
Steven Brunswick	Mowlem
John Carpenter	SCOSS – involved in research developing educational material now at www.learning-hse.com
Alastair Coombe	TPS / Carillion
Mike Cooper	FaberMaunsell
Paul Craddock	Ove Arup & Partners
Tim Gough	Austin Winkley & Assocs
Tony Hamill	BAA / AMICUS
Thouria Istephan	Sir Norman Foster & Partners
Stephen King	CABE
Hash Maitra	HSE CD Technology Unit
Malcolm West	Shepherd Engineering
Nick Perkins	Kelsey Roofing
Nic Rigby	HSE – Lead on Designer Initiative
John Tebbit	Construction Products Association (pm)
Martin Thurgood	HSE – Construction Sector
Mike Webster	BOMEL
Ray Wilson	Barclays

Presenting / facilitating / coordinating

Kevin Myers	HSE, Chief Inspector of Construction
Steve Turner	The Learning Laboratory
Helen Bolt	BOMEL

At the outset participants expressed their aspirations for the day. The views help set the scene:

- Want something on the table to get designers to think in the way that is needed to address health and safety
- Want disparity of performance between designers to be addressed

- Enable people with specialist skills to get involved early
- Get recognition for the way design decisions affect facilities operations
- Combination of disciplines present is good and provides a good example of what is required
- Reinforce need for links between architects and facilities management to be forged
- Undergraduates need to be brought in
- Want designers to feel part of construction process in terms of those working in the mud and not just aesthetic design
- Interested to learn about solutions where challenges have been overcome
- Looking for a progressive way to address health and safety
- Want feedback on safer ways to do things
- Having been in mid-range of audit, keen to move into upper quartile of designers
- Participating out of frustration due to lack of integration
- Want to see designers convinced that their role in CDM is adding value.

Annex B – Think Tank Output

The Think Tank was facilitated by Stephen Turner of the Learning Laboratory. Each session used a different technique and the output and sequencing is illustrated on the following pages

The first sheet (Principal features) shows the final groupings from the opening 'Card Call' session where, in pairs, participants identified key features which were subsequently consolidated under the themes as shown. The 'rating' refers to the number of 'votes' associated with each item when Participants were asked individually to identify the most important aspect based on their instinct before further thought was applied.

The remainder of the Annex contains a pair of sheets for each of the five themes pursued by the groups.

The first sheet in each pair (** - dialogue) records the 'Talking Walls' discussion with ideas on the left and associated comments on the right. There were several sets of dialogue running under each theme and these have been separated down the page.

The second sheet in the pair (** - actions) then contains the results of the 'Lotus Blossom' exercise. The theme is in the centre, the principal issues which emerged are emboldened in the outer grids and the ideas which blossomed surround these. At the foot of the page are the action plan elements which emerged.

The final sheet sets the action plans down alongside each other. From this the interface and overlap between them is evident.