

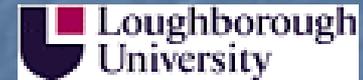
Industry's Perspective of Design for Safety Regulations

John Gambatese, Oregon State University, USA

Alistair Gibb, Loughborough University, UK

Phil Bust, Loughborough University, UK

Michael Behm, East Carolina University, USA



East Carolina University

CIB W099 Conference

Working Together: Planning, Designing and Building a Healthy and Safety Construction Industry

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Prevention through Design (PtD)

- “Addressing occupational safety and health needs in the design process to prevent or minimize the work-related hazards and risks associated with the construction, manufacture, use, maintenance, and disposal of facilities, materials, and equipment.”



NIOSH National Institute for
Occupational Safety and Health

(<http://www.cdc.gov/niosh/topics/PTD/>)

Implementing PtD in Construction

- Why design for construction safety?
 - ✓ ■ Connection between design and site hazards
 - ✓ ■ Ethical responsibility
 - ✓ ■ Ability to influence safety (hierarchy of controls)
 - ? ■ Makes good business sense
 - ? ■ Contractually obligated
 - ? ■ Required by statute (some countries)
 - Other...

Research Study

- Assess the effects of the CDM regulations on the construction industry in the UK
 - Affect of CDM regulations on:
 - Design, construction, and safety
 - Perceptions of safety, roles on the project, and organizational and professional culture
 - Management of projects
 - Presence of innovative processes and products

Research Study

- Focus group interviews
 - 6 professional “communities”:
 - Architects, design engineers, facility owners/developers, constructors, manufacturers/suppliers, and H&S consultants
 - 13 focus group interviews
 - Total of 61 participants in interviews
 - Experience with CDM regulations: 1-18 years (mean = 11.1)
 - 46% from firms with >1,000 employees
 - 26% H&S consultation, 22% project management, 20% construction, 18% engineering, and 14% architecture
 - Industry sectors: 36% commercial, 35% industrial, 29% infrastructure, and 28% residential

Results: What is done differently now?

- Changes since introduction of CDM regulations:
 - More safety notes/symbols on drawings
 - More pre-fabrication
 - More consideration of construction earlier in project
 - Safety constructability, not just constructability
 - More paperwork!!
 - Designer change in perspective regarding safety
 - More communication/collaboration as a team
 - Causing them to “just do what they should do as professionals”
 - “This is the real driver. CDM was just the catalyst.”

Results: Impact on Projects

- Change as a result of implementing PtD
(% of respondents)

Item	Decrease	No Change	Increase
Design cost (n=35)	6%	46%	49%
Construction cost (n=38)	34%	24%	42%
Design duration (n=37)	8%	57%	35%
Construction duration (n=39)	38%	44%	18%
Construction quality (n=39)	8%	28%	64%
Construction worker productivity (n=30)	13%	33%	53%
Construction worker health & safety (n=45)	4%	9%	87%
End-user health and safety (n=42)	5%	10%	86%

Results: Barriers and Enablers

■ Barriers:

- Designer education and training
- Difficult for designers to assess risks
 - Also differences in risk thresholds
- Lack of knowledge of CDM regulations
- Too much paperwork!!
- Separation of design and construction
- Competing priorities (safety vs. cost/schedule)

■ Enablers:

- Construction experience of A/Es
- Integrated project delivery methods (e.g., design-build)
- A good CDM Coordinator and early involvement

Results: Desired Changes

- **Desires/Needs:**

- Less paperwork!!
- Guidance on what designers should do in practice and what is better left up to the contractor
- Improvements in safety and design culture
- Make CDM Coordinator a more “professional” position, on the same level as the A/E

PtD Regulations: Issues to Consider

- **Issues/concerns:**
 - Small projects vs. large projects
 - Involvement/impact depends on industry sector
 - On some projects:
 - Just “doing the paperwork” (depends on CDM Coordinator)
 - Alienating designers instead of engaging them
 - Focus on “commercially practicable”
 - Just documenting the risk and managing it as usual?
 - Minimal pushing of interventions up the hierarchy of controls
 - Designing for operations and maintenance safety viewed as satisfying CDM regulations?
 - Construction safety still “passed on” to contractor

PtD Regulations: Issues to Consider

- **Issues/concerns:**
 - “Whatever I do won’t help.”
 - Planning Supervisor credibility
 - Design already optimized on standard projects?
 - PtD message lost amid need to meet CDM regulations
 - Where does designer’s responsibility end?
 - By doing PtD, is there now less of a need to do downstream risk management?
 - Yes and No
 - If no CDM, then PtD would not happen?
 - Yes and No

Thanks for Listening

- Questions? Comments?
- For more information:
 - john.gambatese@oregonstate.edu
 - A.g.gibb@lboro.ac.uk
 - P.d.bust@lboro.ac.uk
 - behmm@ecu.edu

