



Practical assurance for your workplace

Safety in Design

A process for risk assessment and hazard identification for the life cycle of an asset.



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October 2015

What we will cover

- New Zealand Legislative Framework
- International Requirements and Experiences
- A Model for Design
- Facilitation
- Links to Contractor Management

The Health and Safety at Work Act 2015

PCBU to ensure “as far as is reasonably practicable” the health and safety of workers

So far as is reasonably practicable ensure the plant, substance or structure is without risk to the health and safety of persons who;



- Use,
- Handle,
- Store,
- Construct,
- Carry out any reasonably foreseeable activity, e.g. cleaning/maintenance or repair,
- Others in the vicinity of and might be exposed to the plant substance or structure.

Duties on Designers

Manufacture, Assembly, Use, Storage, Decommissioning, Dismantling Disposal.

- Undertaking tests, calculations, analysis or examinations on the item.
- Providing information on the purpose for which the item was designed.
- Any information necessary to ensure the item is without risk to health and safety



International Requirements

United Kingdom

CDM Regulations 2007 regulations revoked, now 2015

Client responsibilities – provide information to designers and contractors

- Construction phase plan
- Health and Safety file



Australia

Work Health and Safety Act

Code of Practice and Guidance,
Definition of plant and structures

(insight into what might come to NZ)



Link between fatalities and unsafe design

Analysis of 639 fatalities – 2006 – 2011 to assess the extent that unsafe design contributed

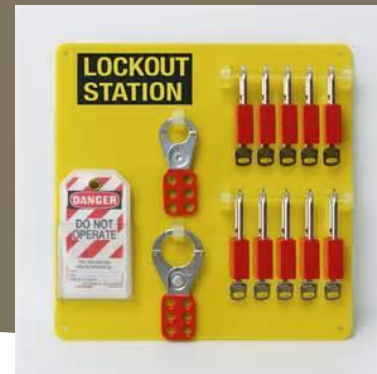
Machinery, plant, powered tools

523 enough info to make this assessment

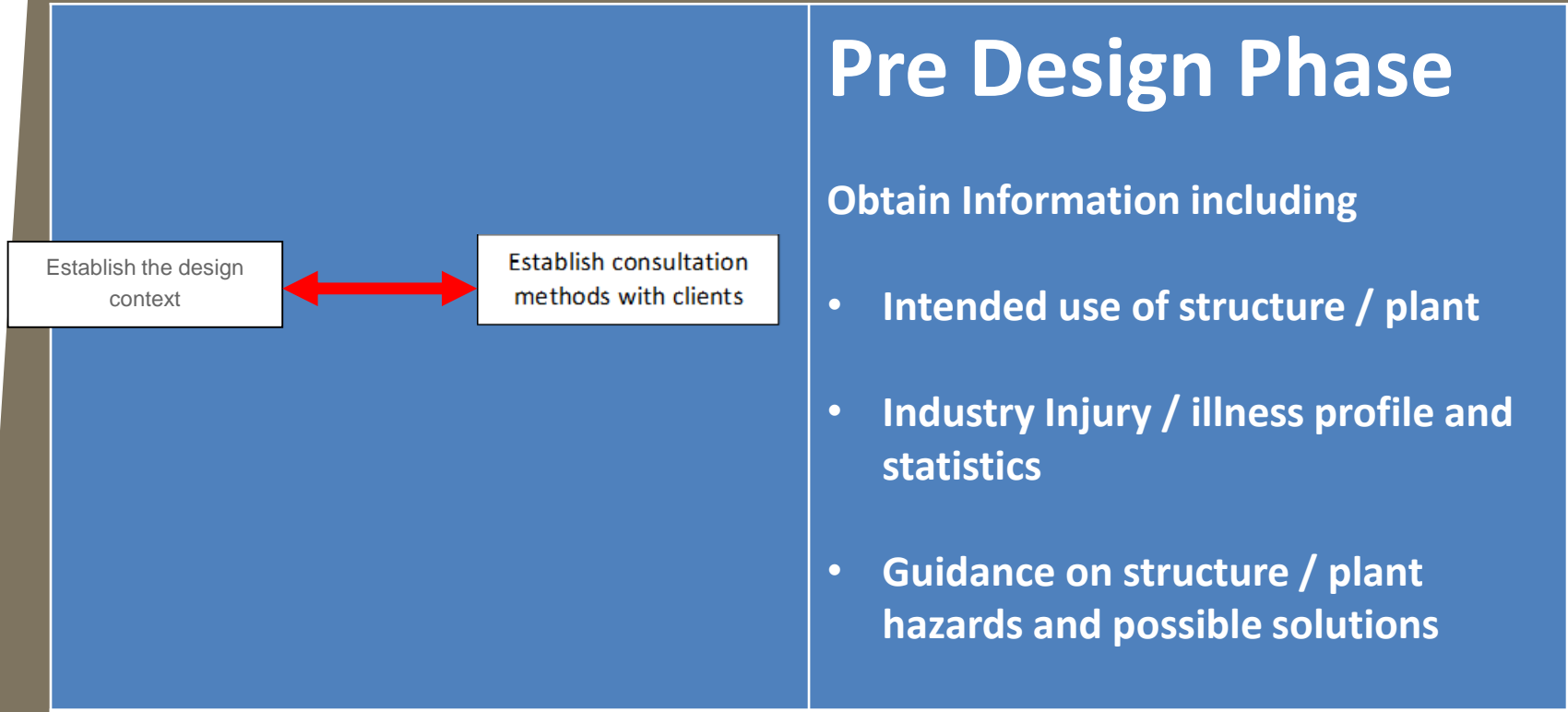
12% definitive unsafe-design cause of clear contribution to the event.

24% possible contribution of unsafe design

21%	15%	12%	8%	8%
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A Safety in Design Model



A Safety in Design Model

Conduct a preliminary hazard analysis and consultation

Identify hazards that are affected by the design of the structure, and are within the control of the designer

Conceptual and Schematic Design Phase.

Framework for the preliminary hazard analysis

- **Siting**
- **High Consequence Hazards**
- **System of Work**
- **Environment**
- **Incident Mitigation**

A Safety in Design Model

Design Development Phase

Determine how risks will be eliminated or minimised through either:

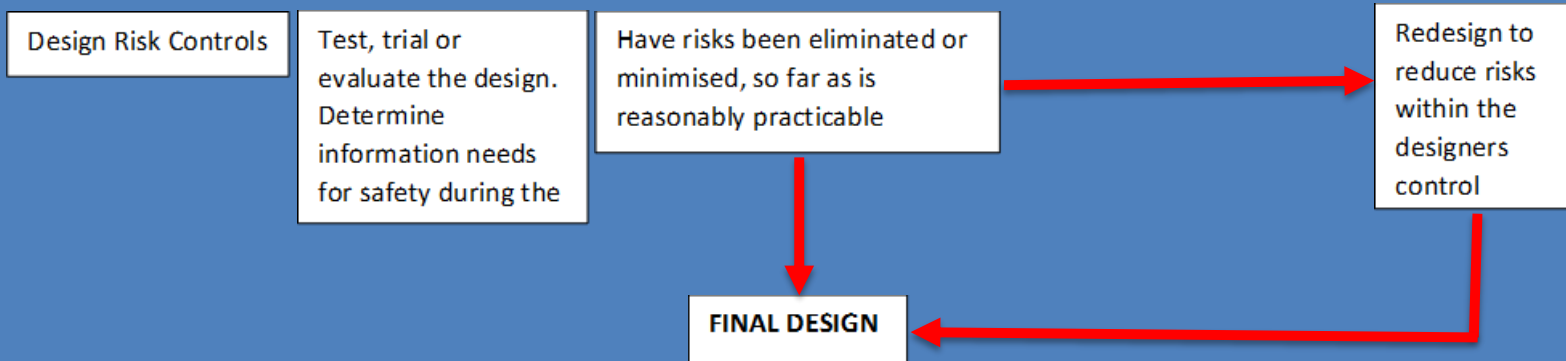
- a) Implementing solutions from recognised Standards or;
- b) Conducting a risk assessment process

(a) Implement solutions from published technical standards

Identify hazards that can be addressed by applying solutions/guidance from existing standards if relevant

(b) Conduct a risk assessment process

for hazards which have no suitable solutions from published technical standards or there is a poor safety experience with this type of hazard.

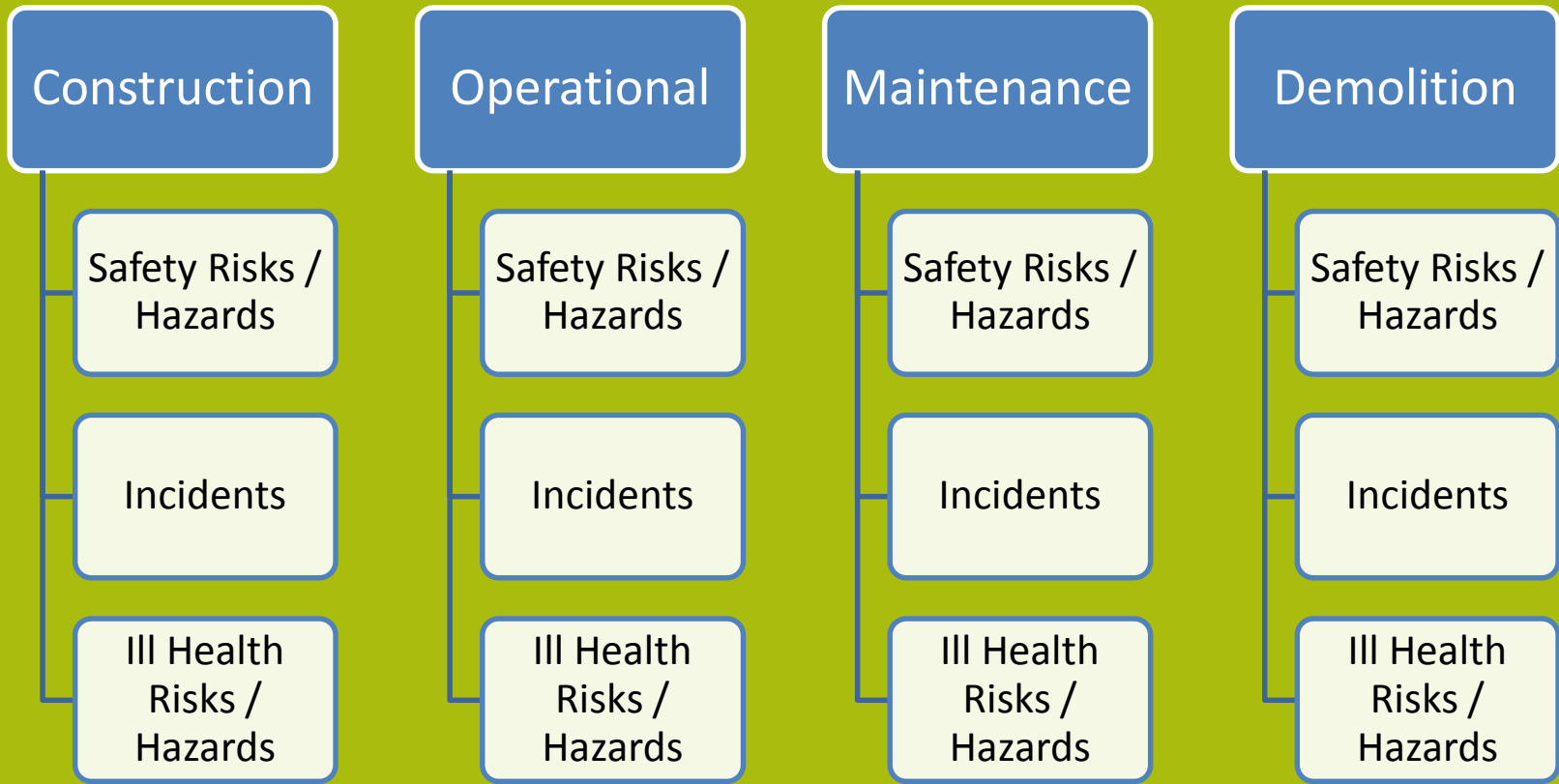


Facilitation of a SiD Workshop

- ✓ Identification of stakeholders
- ✓ Hazards and Risks
- ✓ Provision of information in advance of the review process
- ✓ Organise a site visit
- ✓ Clarity around the scope of the process
- ✓ Frequency of safety in design reviews



Facilitation of a SiD Workshop



Design Project Risk Register

Contractor Management

The Principles Guide to Contracting to meet the Health and Safety in Employment Act 1992.

- Scoping the work.
- Auckland Council has embarked on a process to introduce a new Food Waste Collection Service.
- Safety in Design and early engagement with potential contractors.
- Key risks and hazards were identified.
- Good practice controls.



Conclusions

- ❖ Long term benefits.
- ❖ Hazards and risks eliminated in design phase.
- ❖ Controls developed pre commissioning .
- ❖ Reduce costs associated with retrofitting controls after the design has been commissioned.
- ❖ Comprehensive consultation process with all stakeholders.

Resources

Health and Safety Executive. (2015, January 22). The Construction (Design and Management) Regulations 2015.

Ministry of Business Innovation and Employment . (2010, May). *A principals guide to contracting to meet the Health and Safety in Employment Act 1992 A guide for workplaces.*

New Zealand Transport Agency. (2014, October). Safety in Design Minimum Standards for Road Projects.

Safe Work Australia. (2012, July). *Code of Practice Safe design of Structures.*

Safe Work Australia. (2014, November). Work Related Fatalities associated with unsafe design of machinery, plant & powered tools, 2006 - 2011.

Safe Work Australia. (2014, July). *Guide for Safe Design of Plant.*



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