besafe

(Health &) Safety in Design

CCG Steering Group Position Statement

compac

The purpose of this group is to establish a consistent understanding of safety in design under the new legislative regime and create a forum for sharing, challenging and empowering its members to apply these principles.

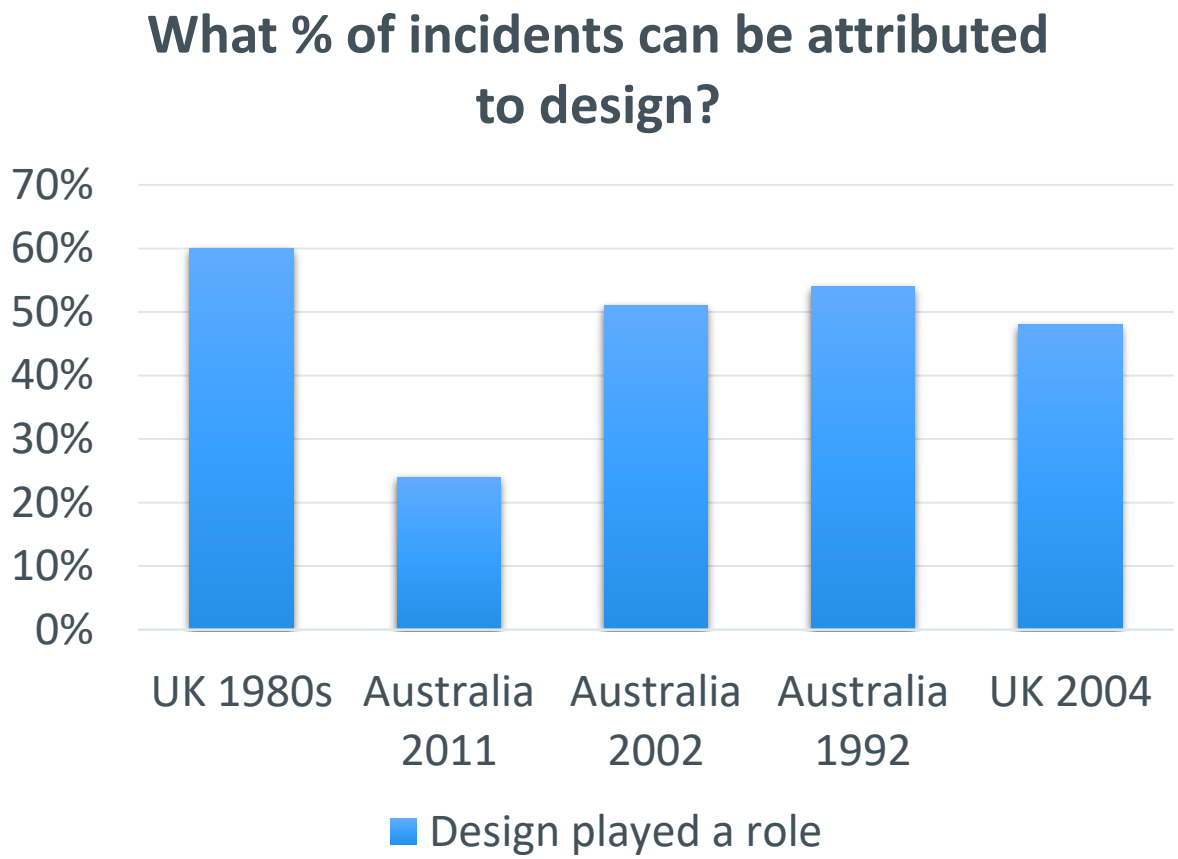
CCG Safety in Design Industry Steering Group

Construction Clients' Group
CONSTRUCTING EXCELLENCE

compac

SID – Why worry?

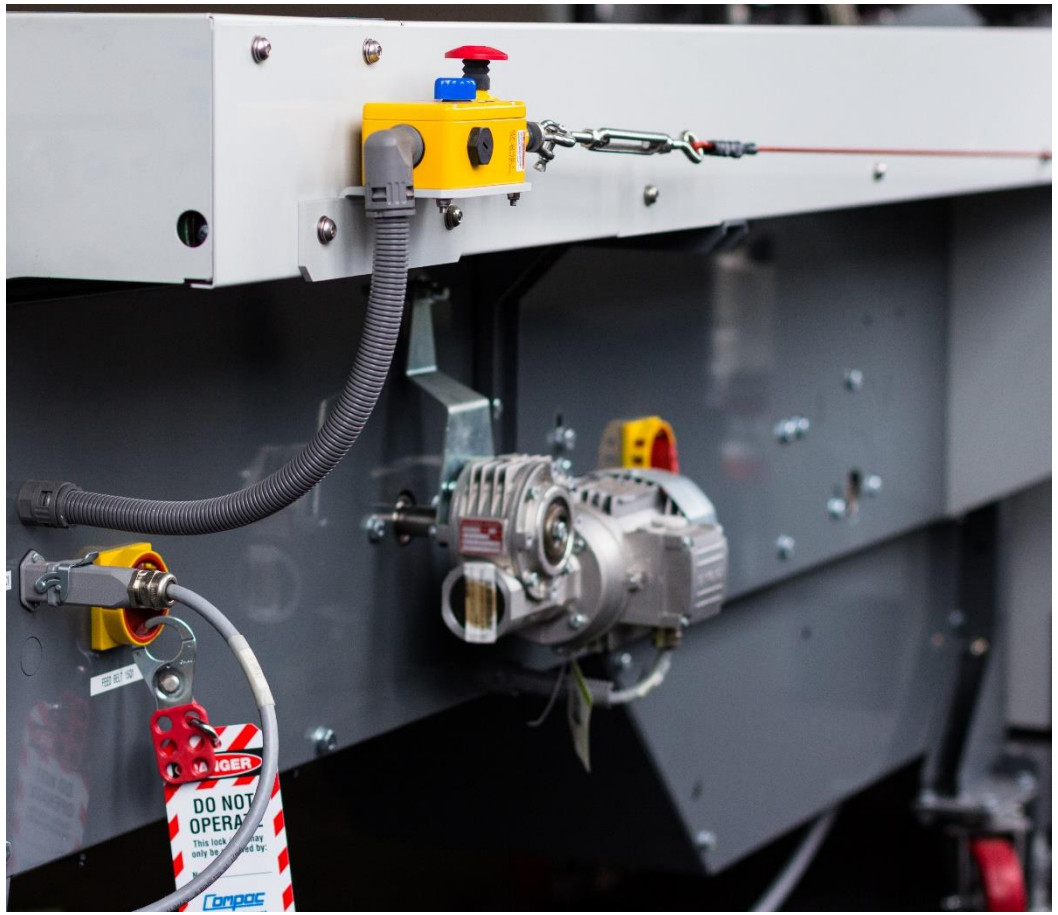
besafe

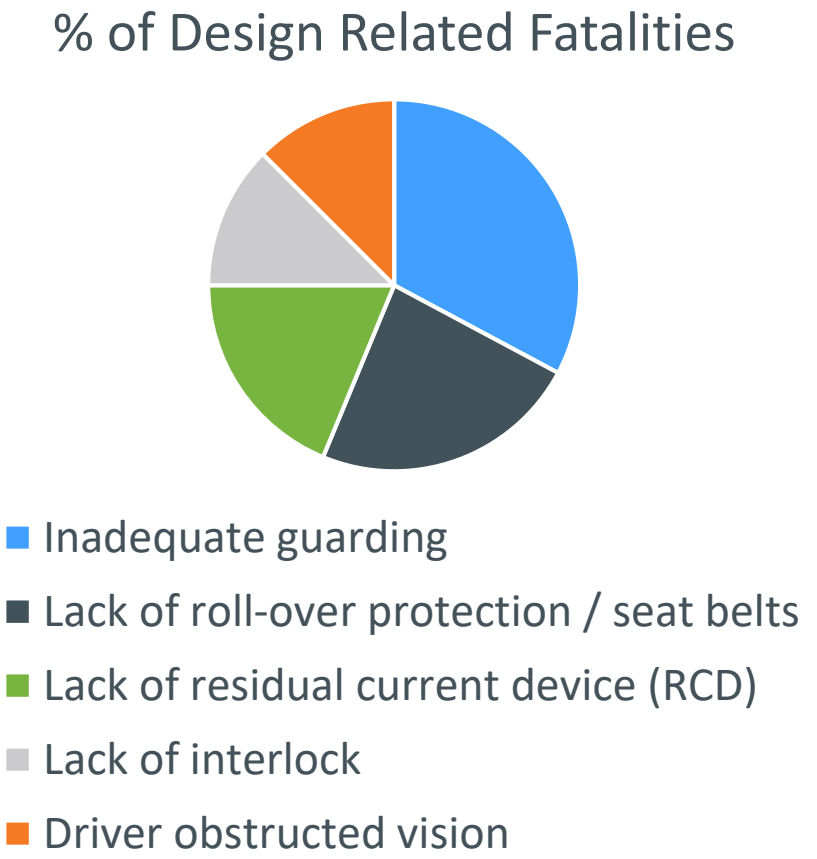


compac

What design elements are causing fatalities?

besafe





compac

Case Study – Abbeystead, UK

besafe

May 1984, 16 died after a methane gas explosion destroyed a waterworks' valve house

Source of the methane gas as coal seams 1,200 m below the pipeline

- 55% liability - Designers for failing to exercise "reasonable care" in assessing the risk of methane
- 30% liability – Water Authority for failing to ensure the plant was safe for visitors and employees by testing for methane
- 15% liability – Contractor for failing to carry out systematic tests for methane

compac

Casey Study – Luton Airport, UK

2009

Elderly woman died on a pedestrian crossing at Luton Airport

- 75% Liability – owner, Luton Airport
- 25% Liability – design subcontractor

Total fines NZD $1million.

New Zealand

besafe

September 2015

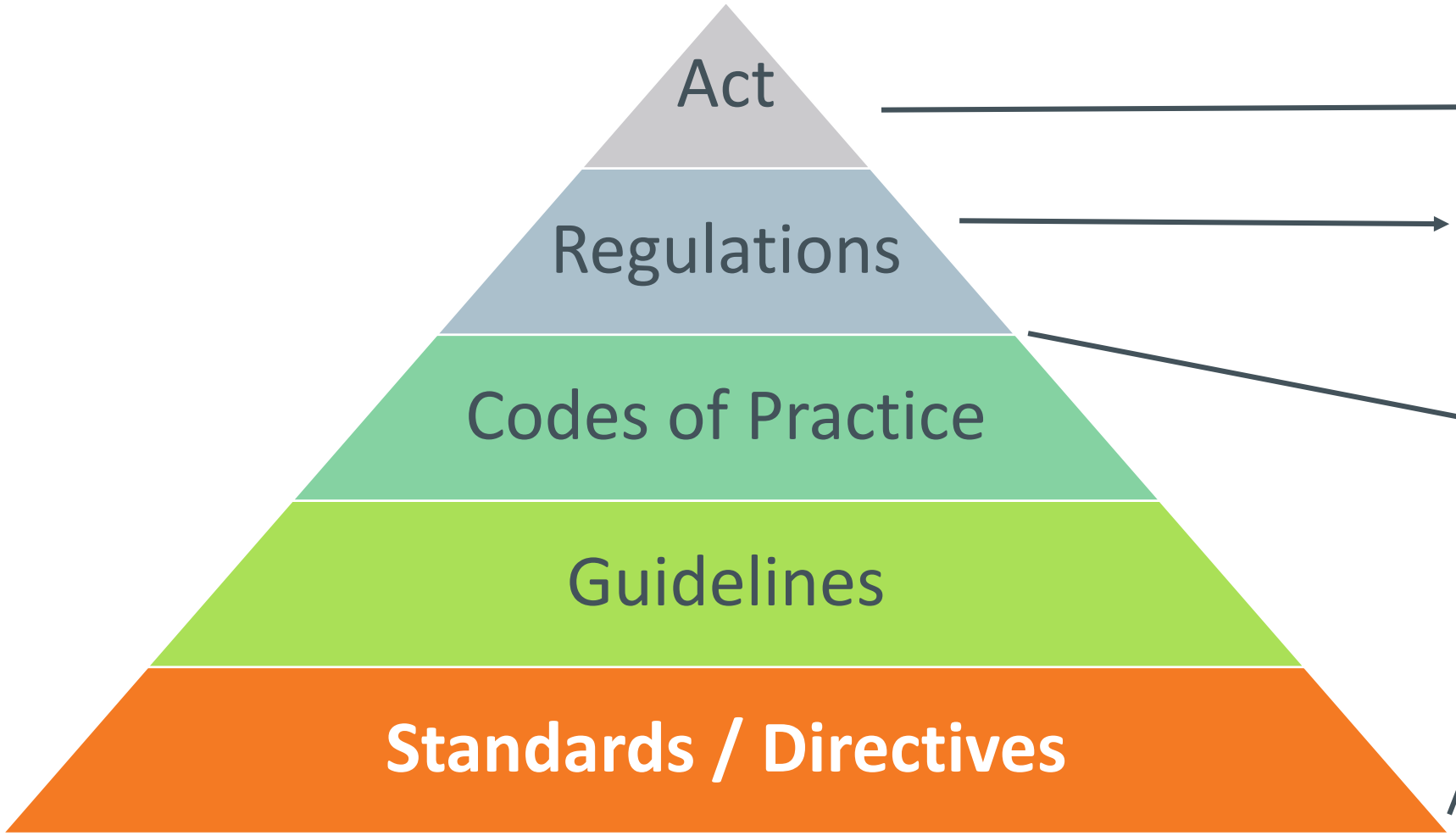
Zoo keeper killed by a Sumatran tiger when she entered the cage thinking that the tiger was locked in its night enclosure.

Hamilton City Council found guilty for failing to take **all practical steps.**

compac

Legislative Frameworks – Due Diligence

besafe



Duty to do everything SFAIRP

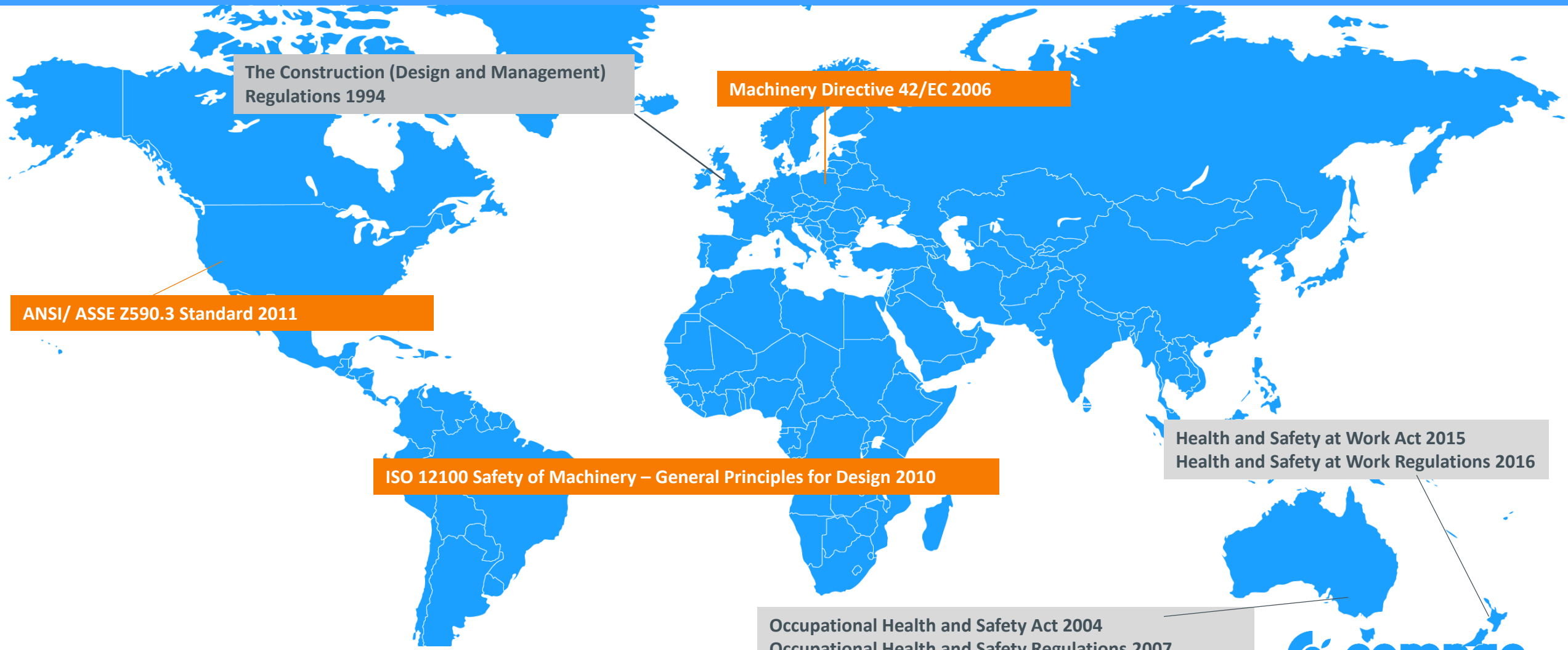
Few specific controls (e.g., conduct tests and provide information)

Practical guidance (i.e., how you achieve SFAIRP)

compac

Where are the rules specifically about SID?

besafe



compac

Comparison of Key Elements

besafe

Key Element	Australia Safe Design of Structures	International ISO 12100	USA ANSI/ ASSE Z590.3	Europe Machinery Directive	UK CDM Regulations
Knowledge & Capability	X				X
Consultation, Collaboration	X				X
Consider the Full Lifecycle	X	X	X		X
Risk Management Approach	X	X	X	X	X
Information Transfer	X	X	X	X	X
Level	*Code of Practice*	*Standard*	*Standard*	*Directive*	*Regulation*
Application	*All*	*Machinery*	*All*	*Machinery*	*Construction*

compac

Our Position – the Australian CoP

besafe

It is our position that the **key elements of safety in design** as outlined in the CoP be implemented by PCBUs in New Zealand to achieve their duty of care.

compac

But…Context…Major Construction

besafe

Consider in **context** for the size and complexity of the product or project.

The core principles should be made **relevant to other industries** or aspects of design including:

- manufacturing or heavy industry
- retrofits, upgrades or refurbishments
- plant, equipment, control systems or substances.

compac

Scope

besafe

New Zealand organisations should specifically include **health (and environmental)** factors into their safety in design frameworks.

compac

Scope

besafe

Special consideration should be made to apply health and safety in design principles to the **software and control systems** associated with any plant, substance or structure.

compac

Risk Management Approach

besafe

Each PCBU should identify the **risk tool** which is appropriate to their operations and designs.

Controls should be implemented based on the risk **regardless of the industry** in which they are being applied.

compac

Risk Management Approach

besafe

Tests, calculations and analysis should be applied as required by the relevant technical standards and over-arching quality process.

Testing should form a **critical part of a pre-commissioning** phase especially where there are multiple designs, PCBUs or discreet bodies of work which come together to provide one functional unit.

compac

Consider the Lifecycle

besafe

PCBUs should consider all potential **uses and misuses** of the plant, substance, structure or control system being designed, especially where the **potential consequences are high.**

compac

Knowledge & Capability

besafe

Where a PCBU identifies itself as a “designer”, it should **establish resources, roles and responsibilities** to manage this duty of care.

A foundation for all competencies should include **awareness of the key elements** of health and safety in design as they are relevant to the individual’s duty of care.

compac

Knowledge & Capability

besafe

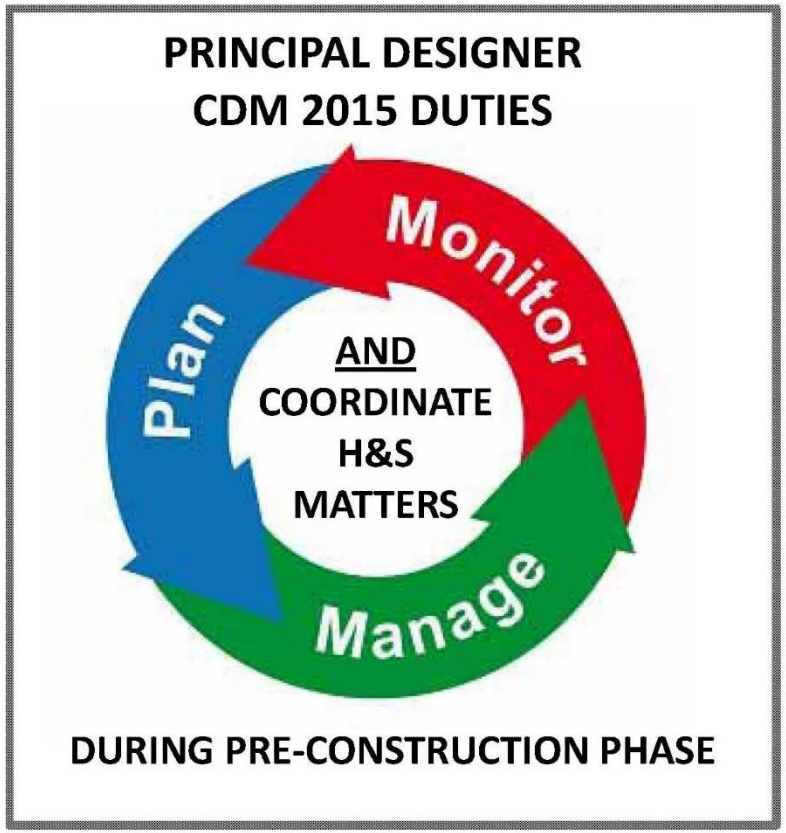
PCBUs should assess the core competencies for each designer individually. This should be based on **core technical competencies** associated with the professional advise or technical contribution to the design.

Peer reviews should be included as an independent check that the relevant professional standards have been met, especially where there are high risks.

compac

Consultation, cooperation and co-ordination

besafe



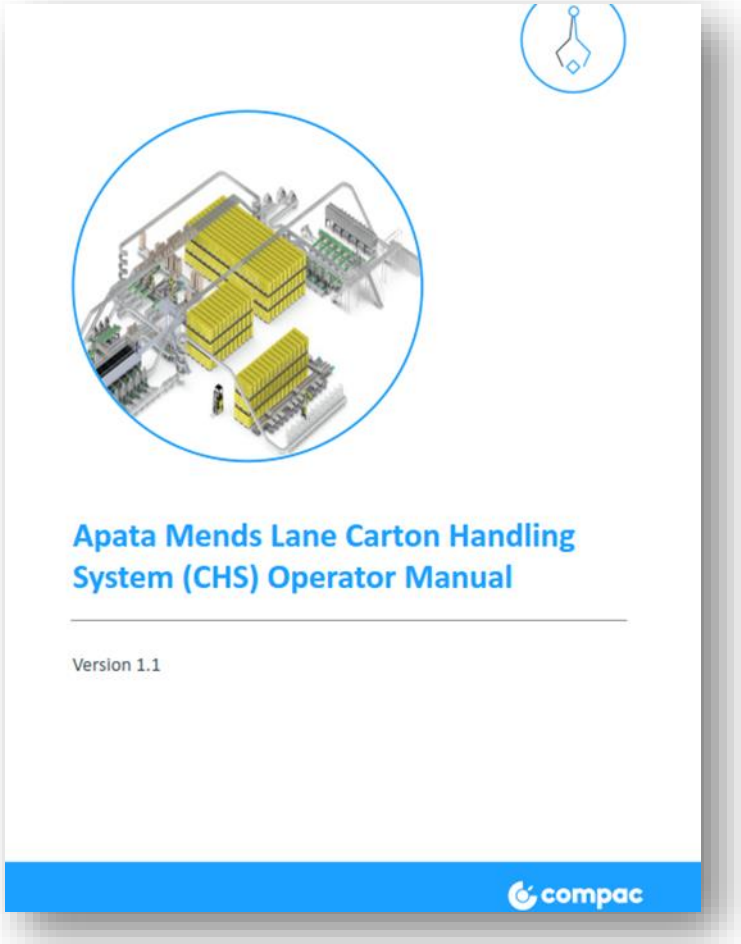
Where there is a shared duty by multiple PCBUs, the **responsibility for should be assigned to a specific individual** to lead, coordinate and monitor.

PCBUs should ensure **consultation is completed early** with those affected.

compac

Information Transfer

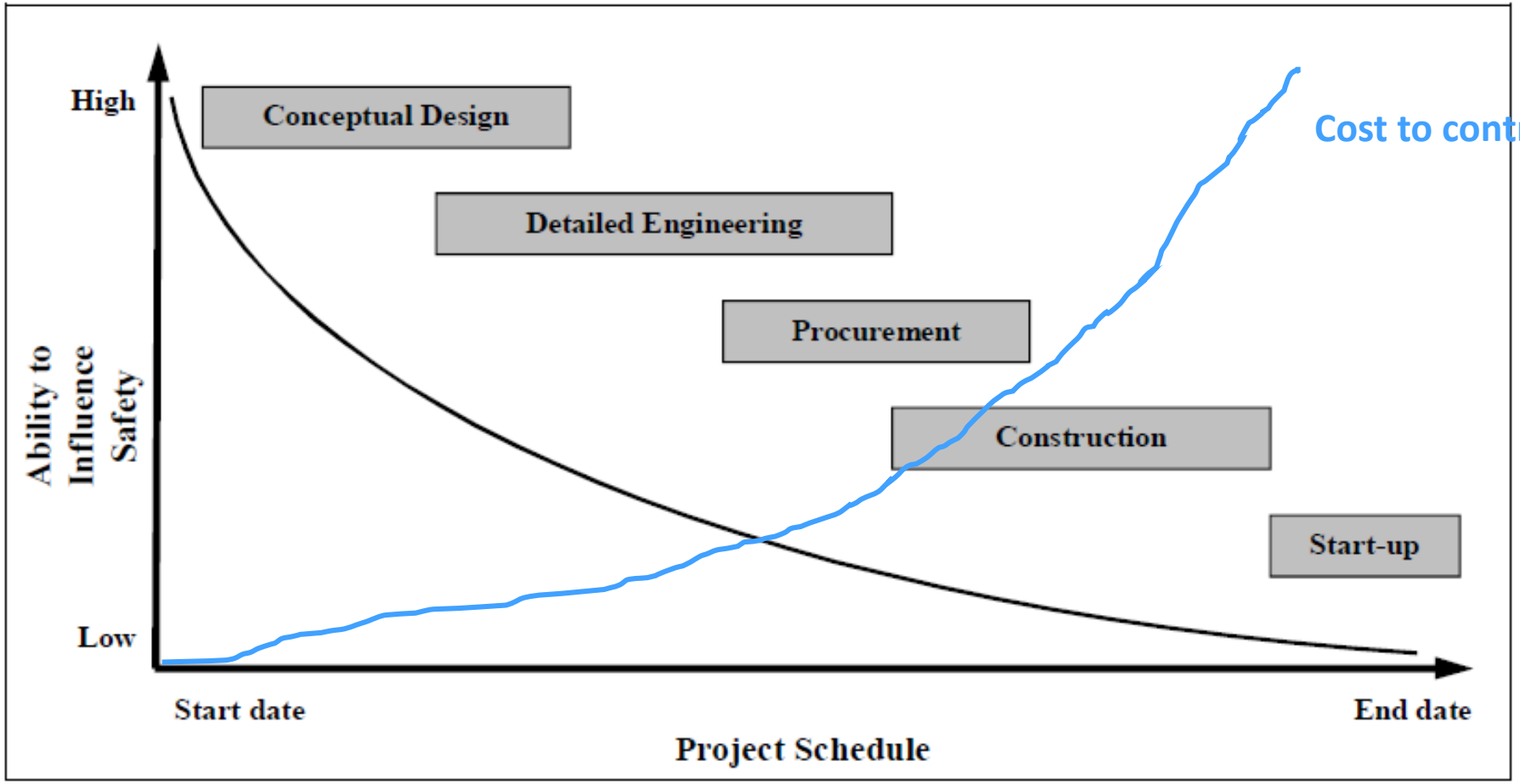
besafe



Manuals, reports, registers or other **expected method of information transfer should be identified at the beginning** of any contract or engagement.

compac

Cost effective prevention



Cost to control health or design risk

Figure 2 Ability to influence safety on a project (Szymberski, 1997))


compac