



Health and Safety in Design

A Position Statement for the New Zealand Infrastructure Industry

About the Construction Clients' Group

The Construction Clients' Group is an independent membership organisation committed to improving the business performance of its members by focusing on innovation, best practice and knowledge sharing in enhanced collaborative working and supply chain integration.

About the Safety in Design Industry Steering Group

The Safety in Design Industry Steering Group is a work stream of the Construction Clients' Group which includes representatives from NZTA, Auckland Transport, Christchurch City Council, the Department of Corrections, the Ministry of Education, Genesis Energy, Fulton Hogan, MWH, AECOM and others. The purpose of this group is to establish a consistent understanding of safety in design under the new legislative regime and create a form for sharing, challenging and empowering its members to apply these principles.

Purpose of this Position Statement

Around the world, analysis of serious incidents shows that almost 60% of injuries can be attributed to the design of the plant, substance or structure. Analysis of these incidents show that the majority are related to machinery or plant and are caused by people and plant interactions such as inadequate guarding or restraints, lack of interlocking systems or electrical considerations.

This document sets out the position of the members of the CCG in relation to the elements of health and safety in design as they should be applied in New Zealand under the Health and Safety at Work Act (HSWA) 2015.

Background

"Safety in Design" has been applied as a concept in a variety of industries in New Zealand for several years with an increased focus leading up to the release of the HSWA.

The CCG has reviewed and considered international experience and standards such as UK CDM Regulations, European Machinery Directives, ANSI Z490 Standard, and Australia Code of Practice and Guidelines which relate to health and safety in design.

Position Statement

The *Code of Practice for the Safe Design of Structures 2012* (CoP) was developed in Australia to provide a detailed and robust guideline for the implementation of key organisational and process elements recommended to achieve a successful outcome for health or safety in design of any plant, substance or structure by Persons Conducting a Business or Undertaking (PCBUs).

The key elements in the CoP are aligned to the HSWA and are consistent with international experience. These provide robust and clear direction for achieving safe and healthy designs in the New Zealand context:

1. Use a risk management approach
2. Consider the lifecycle
3. Knowledge and capability
4. Consultation, cooperation and co-ordination
5. Information transfer

Applying these key elements during contract engagement and project management is fundamental to best practices for ensuring cost effective, efficient and a successful outcome for all stakeholders.

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

The remainder of the CoP needs to be considered in the context of the size and complexity of the product or project. While the CoP is focused on major construction projects, 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

Scope

Although some health risks (e.g. ergonomics, air borne health hazards) have traditionally been included during the application of safety in design, New Zealand organisations should specifically include health (and environmental) factors into their safety in design frameworks.

In addition, 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. The operational (and therefore potential failure) of many of our structures and plant rely on software and control systems.

Special consideration and industry relevant guidance should be developed separately for manufacturing, heavy industry and construction. In addition, guidance is required on how to apply the principles to retrofits, refurbishments or partial designs.

Use a Risk Management Approach

While there are core basic steps which must be undertaken in any risk management approach, the tools used for achieving risk management can vary significantly based on the industry. 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. Where there is an absence of applicable standards, the burden of proof must fall on the PCBU to demonstrate that any action or policy is appropriate for the risk.

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.

Consider the Lifecycle

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.

Knowledge & Capability

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

As “designers” can include a wide variety of stakeholders and individuals, PCBUs should assess the core competencies for each designer individually. This should be based on core technical competencies associated with the professional advice or technical contribution to the design.

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.

Peer reviews (review and verification) by internal or external individuals or PCBUs should be included as an independent check that the relevant professional standards have been met, especially where there are high risks.

Consultation, co-operation and co-ordination

Where there is a shared duty by multiple PCBUs, the responsibility for managing the application of health and safety in design on a project, system or product should be assigned to a specific individual to lead, coordinate and monitor.

PCBUs should ensure consultation is completed early with those affected (especially those responsible for construction, manufacturing, assembly or installation) and a record kept of the discussion points and outcomes.

Information Transfer

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

For more information:

<http://www.constructing.co.nz/Services/Construction-Clients-Group/About-CCG>

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He aha te mea nui o te ao? He tangata, he tangata, he tangata.

What is the most important thing? It is people, it is people, it is people.

Inputs

Draft WorkSafe NZ Position Statement

CCG Workshops involving WorkSafe NZ, Compac, Genesis, NZTA, Fulton Hogan, Vector

Australian Codes of Practice – Safe Work Australia -

<http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/698/Safe%20Design%20of%20Structures2.pdf>

Additional Resources

Worksafe NZ Icebreaker 6: Upstream Businesses: <https://www.youtube.com/watch?v=AdpJiWjzQzw>

Model Code of Practice for the Safe Design of Structures:

<http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/698/Safe%20Design%20of%20Structures2.pdf>

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