



WORKSAFE

Health and Safety by Design

Good Practice Guidelines

Contents

- 1 Introduction
- 2 Health and Safety at Work Act (2015)
- 3 Upstream Duties
- 4 Health and Safety by Design
- 5 WorkSafe Good Practice Guidelines
- 6 Key Principles

1

Introduction

New Zealand has a problem

On average, every week:

1 person dies at work

12 people die from work-related diseases



Maintenance Workers Fatal Accidents (last 5 years)

Total 17

- Vehicle - hoisting or crushed between (4)
- Falls from heights (3)
- Lift maintenance (3)
- Angle grinders (2)
- Hot work (2)
- Electrocution (2)
- Gas cylinder rupture (1)



Mechanical Engineers / Technicians (Manufacturing Industry)

Serious Injury Accidents (last 5 years)

2013	2014	2015	2016	2017
112	102	106	105	105

- Average of 2 per week



2

Health and Safety at Work Act (2015)

Health and Safety at Work Act 2015

- Changing the law is **only a start**
- To make a real difference, we need to **change our attitudes** towards Health and Safety

Getting you home healthy and safe.
That's what we're working for.





HSWA is a new way of thinking

- Ensures **everyone has a role to play**
- Makes everyone's **responsibilities clear**
- Focuses on **risk management**
- Requires those who create the risk to **control the risk**
- Requires you to **engage with workers and enable them to participate in an ongoing basis**
- **Allows flexibility** in managing your health and safety risks

What are we working towards?

- A **significant reduction in serious injury, illness and death** from work
- **Through ...**
 - Targeting risk
 - Working together
 - Working smarter
 - Working safer



HSWA Section 39

Duty of PCBU who designs plant, substances, or structures

The designer must, so far as is reasonably practicable, ensure that the plant, substance, or structure is designed to be without risks to the health and safety of persons.

The designer must carry out, or arrange the carrying out of, any calculations, analysis, testing, or examination that may be necessary for the performance of the duty.

The designer must provide adequate information including the results of any calculations, analysis, testing, or examination to ensure that the plant, substance, or structure is without risks to health and safety ...

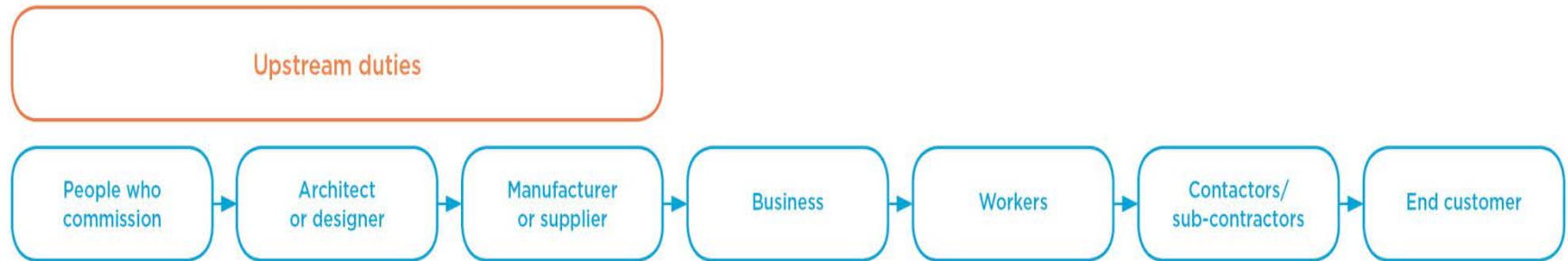
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Upstream Duties

Health and safety in the supply chain

Upstream duties

- Businesses who are 'upstream' (eg architects, manufacturers, importers) must ensure, so far as is reasonably practicable, that **the work they do or the things they provide to other workplaces** don't create health and safety risks
- This includes risks during construction, operation, maintenance and decommissioning.



4

Health and Safety by Design



Health and Safety by Design

Safe design is about the team working together using a systematic process to identify hazards early in the design process and providing creative and innovative solutions.

It is the concept of applying methods to minimize occupational hazards and to "design out" health and safety risks early in the design process. An emphasis on optimizing employee health and safety throughout the life cycle.

Health and Safety by Design is not a separate concept from good design – they are the same thing.

Health and Safety by Design

Historical – Designer Responsibility

“When you build a new house, you shall make a low wall around the edge of your roof so that you do not put the guilt of blood on your house if someone falls from it.” - (unknown 1452 BC Reference)

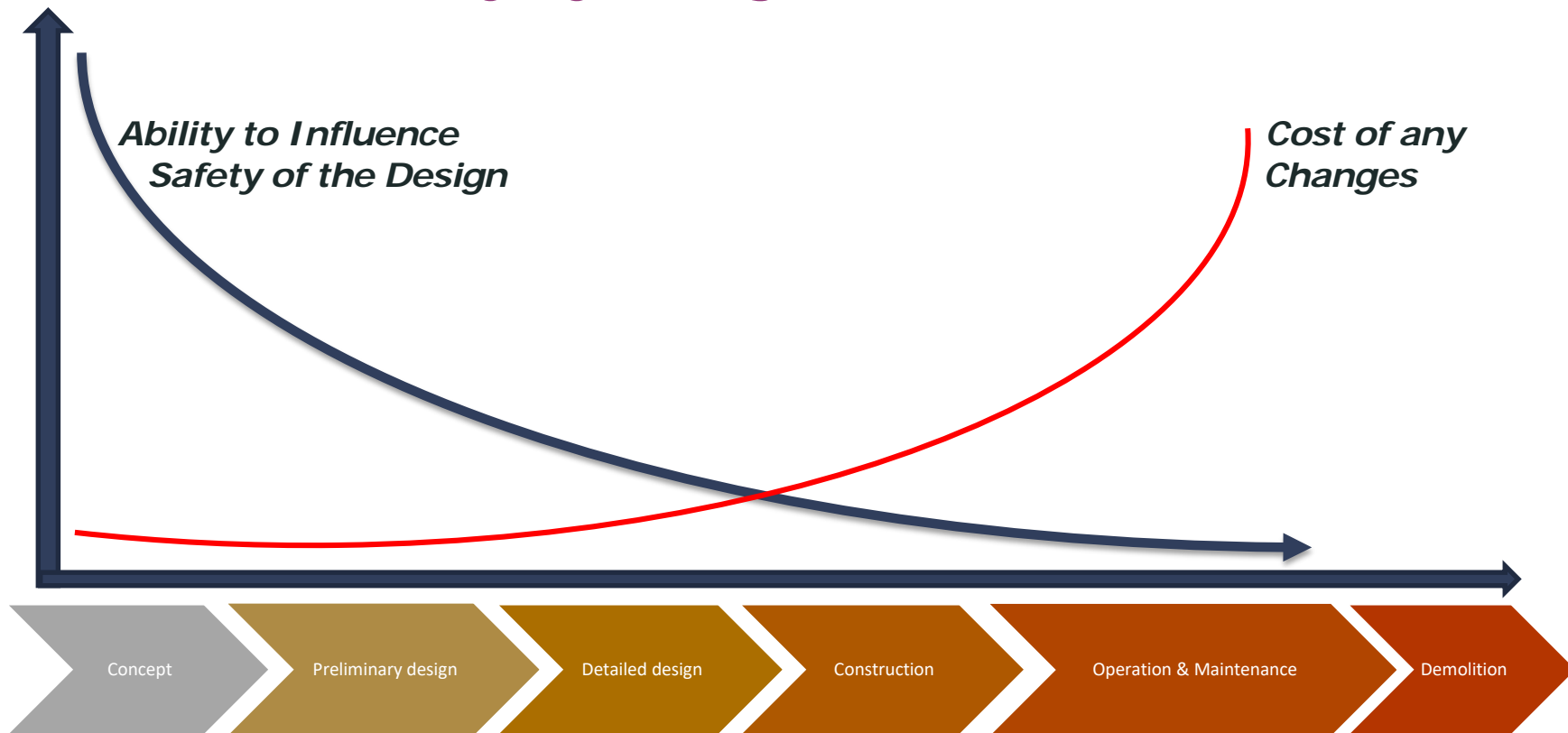
Modern Safety in Design concept developed since 1980's / 1990's

- UK Construction Design & Management Regulations 1994
- USA Institute for Safety through Design 1995

Other names for Health and Safety by Design

- Health and Safety in Design (used quite a lot in NZ)
- Prevention through Design (used in EU and USA)

Health and Safety by Design



5

WorkSafe Good Practice Guidelines

Health and Safety by Design

WorkSafe Good Practice Guidelines

Completed in August 2018

Based on guidance produced by Safe Work Australia and adapted for a New Zealand audience.

Input and comment from many NZ organisations and specialists.

Covers the basic principles of Health and Safety by Design.

Not aimed at experts who already have experience in Health and Safety by Design.

Intended as a starting point.



WorkSafe Good Practice Guidelines

Designers have an important role in eliminating and minimising health and safety risks

There are specific things to consider when designing structures, plant or substances

There are key principles that designers should follow



WorkSafe Good Practice Guidelines

Who is this guidance for?

The guidance is for persons conducting a business or undertaking (PCBUs) with a role in designing structures, plant or substances.

These people may include:

- Designers
- PCBUs who are engaging designers of structures, plant or substances to be used, or could reasonably be expected to be used, in a workplace
- people who make decisions about the design or redesign of structures, plant or substances
- external experts who contribute to design projects.



WorkSafe Good Practice Guidelines

What does it cover?

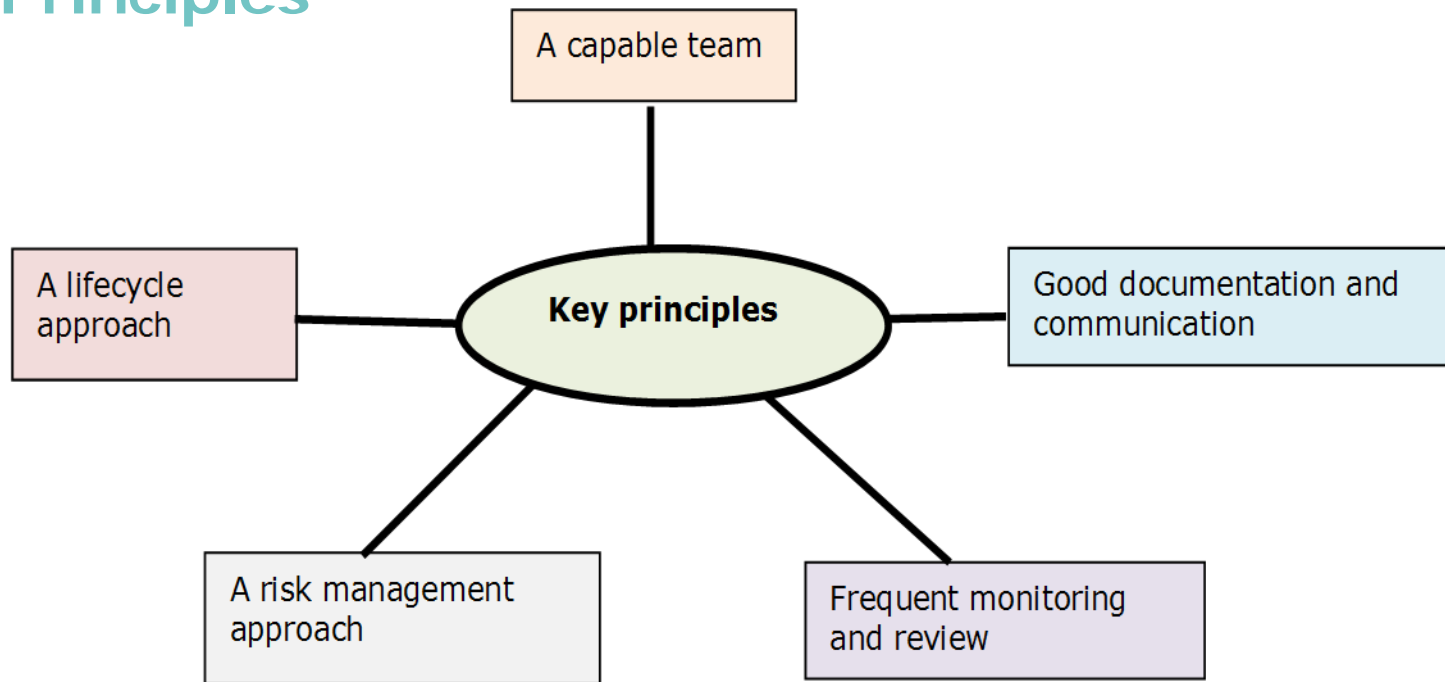
The guidelines:

- begin with general concepts that cover the Health and Safety at Work Act 2015 (HSWA)
- outlines the five **key principles** of Health and Safety by Design
- describes what is good practice when considering the design of structures, plant and substances.

6

Key Principles

Key Principles



A Capable Team

Design safety reviews should involve the people who will eventually construct, manufacture, operate and maintain the structure or plant. (upstream + down stream together).

- Facilitator (experienced in the process)
- designers, architects
- maintenance engineers
- safety, risk and reliability engineers
- technical experts
- hazardous substances professionals
- health and safety advisors
- human factors professionals/ergonomists
- builders
- construction contractors
- workers
- managers



Good Documentation and Communication

Designers must provide adequate information to people who will be using the design. Information about identified health and safety risks, how they were assessed during the design process, and the control measures determined should be documented, and applicable standards and decision pathways recorded throughout the design process.

Providing this information to others involved later in the lifecycle is necessary to make them aware of any leftover risks and methods used to minimise risk. This includes training needed at any stage of the structure, plant or substance's lifecycle.



A Risk Management Approach

- Risk Identification Techniques

General Techniques

- Brainstorming Workshop
- Checklists
- Interviews
- Risk Matrix (Likelihood vs Consequence)
- Bow Tie Diagrams

Specialist Techniques

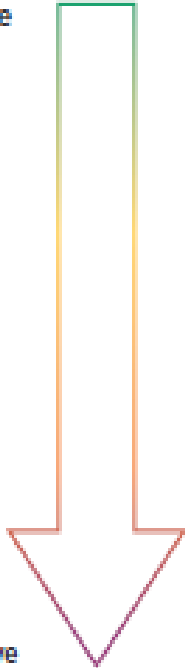
- Failure Mode Effects Analysis
- Hazard Operability Study
- Human Reliability Analysis



A Risk Management Approach

The team can use the hierarchy of controls

Most effective



Elimination



Minimisation

Substitution (wholly or partly) and/or

Isolation/Preventing contact and/or

Engineering control measures



IF RISK REMAINS

Administrative control measures



IF RISK STILL REMAINS

Personal protective equipment (PPE)

Least effective



A Lifecycle Approach

The lifecycle encompasses;

Design, planning, assembly, installation, construction, manufacture, commissioning, use, handling, cleaning, maintenance, inspection, repair, transport, storage, dismantling, demolition.



Where to find the Good Practice Guidelines

Copies are available on the WorkSafe Website:

<http://www.worksafe.govt.nz>

- ☞ A - Z topics and industry
- ☞ Health and Safety by Design



WorkSafe – where to from here:

Currently recruiting a Manager Health & Safety by Design

Led by information gained from the stakeholder engagement that was undertaken late last year will be tasked to build and develop a team of specialists to that complements the work we currently undertake.

Embed with all of Worksafe the principles of HSBD and to ensure that the message gets out to NZ wide industry

Some of the initial focus area will be;

- Carcinogens and airborne risks (exhaust ventilation)
- Noise (updated fact sheets and advice)



**“Health and safety is
about harnessing the
power of the whole team.”**

Lawrence Waterman (2013)



Getting you home healthy and safe.
That's what we're working for.

WORKSAFE
NEW ZEALAND | MAHI HAUNARU
AOTEAROA