

**PAM** EAST COAST  
**PROFESSIONAL**  
**PRACTICE FORUM**

20 October 2019, Sunday  
8.30 am – 4.30 pm  
Hotel Perdana Kota Bharu, Kelantan



# SAFETY AT SITE - O S H C I M - ARCHITECTS' ROLE

Ar. Alvin Lim Hai Seah  
Vice President



**PAM** PERTUBUHAN AKITEK MALAYSIA  
MALAYSIAN INSTITUTE OF ARCHITECTS

## CIDB lauds efforts to make worksites safer

NATION

Monday, 21 Jan 2019 12:00 AM MYT



PETALING JAYA: Urgent action is needed to tackle a continued rise in the number of fatal accidents in the construction sector, said the Construction Industry Development Board (CIDB).

The board's chief executive, Datuk Ahmad Asri Abdul Hamid, said the number of deaths due to accidents went up from 2015.

He lauded the Department of Occupational Safety and Health (DOSH) for its efforts to improve the legal framework on workers' safety and for pushing to make the Guidelines on Occupational Safety and Health in Construction Industry (Management) or OSHCIM mandatory.

Ahmad Asri said DOSH came up with OSHCIM by making slight modifications to Britain's Construction (Design and Management) Regulations, or CDM, in order to make it suitable for use in Malaysia.

He said the CDM Regulations had proven effective in reducing the number of construction accidents in Britain.

The OSHCIM Guidelines aim to ensure that health and safety issues are properly considered during a

project's development.

This is to help reduce the risk of harm to workers at construction sites.

Ahmad Asri said the OSHCIM Guidelines state that the developer must ensure that he engages the right and competent designers.

"The developer also needs to allocate adequate funds for safe construction works as they will be the beneficiary of the project," said Ahmad Asri.

He said a designer must take into consideration how a building or project can be safely constructed during the design phase.

The contractor must ensure workers are given proper training to carry out a task safely.

"Workers must be given personal protective equipment and contractors must ensure that the workplace is safe," he added.

On the planned increase in the penalty for employers who fail to protect employees from workplace-related risks and hazards, Ahmad Asri said a review was timely.

This is because the current maximum penalty has remained at RM50,000 since the Occupational Safety and Health Act (OSHA) 1994 came into force.

"The fines imposed on most of the contractors who were convicted were less than the maximum amount provided by the Act.

"It's high time for DOSH to review the penalty and synchronise it with the CIDB Act 1994, which allows for a maximum RM500,000 penalty for fatal accident cases if the contractor is found guilty of negligence," he added.

Real Estate Housing Developers' Association Malaysia (Rehda) immediate past president Datuk Seri FD Iskandar Mohamed Mansor said the move to make the OSHCIM Guidelines mandatory should be embraced by all developers.

"The OSHCIM Guidelines promote accountability for everyone involved to be equally responsible for the wellbeing of workers, and ensuring the safety of the workplace and construction site.

"According to DOSH, the number of deaths reported at construction sites have been on the rise since 2012.

"This is alarming and changes need to take place to reduce these numbers, and ultimately in the future, eliminate the possibility of accidents at construction sites from happening," said FD Iskandar.

TAGS / KEYWORDS:

Government, CIDB, DOSH, Rehda, MTUC Construction

## SHARING SESSION

# Occupational Safety and Health in Construction Industry Management (OSHCIM)

## OCCUPATIONAL SAFETY AND HEALTH IN CONSTRUCTION INDUSTRY MANAGEMENT (OSHCIM)

Train - the - Trainer Module



ORGANIZED BY:



CO-ORGANIZER BY:



DEPARTMENT OF  
OCCUPATIONAL SAFETY AND HEALTH  
MINISTRY OF HUMAN RESOURCES



# CONTENTS

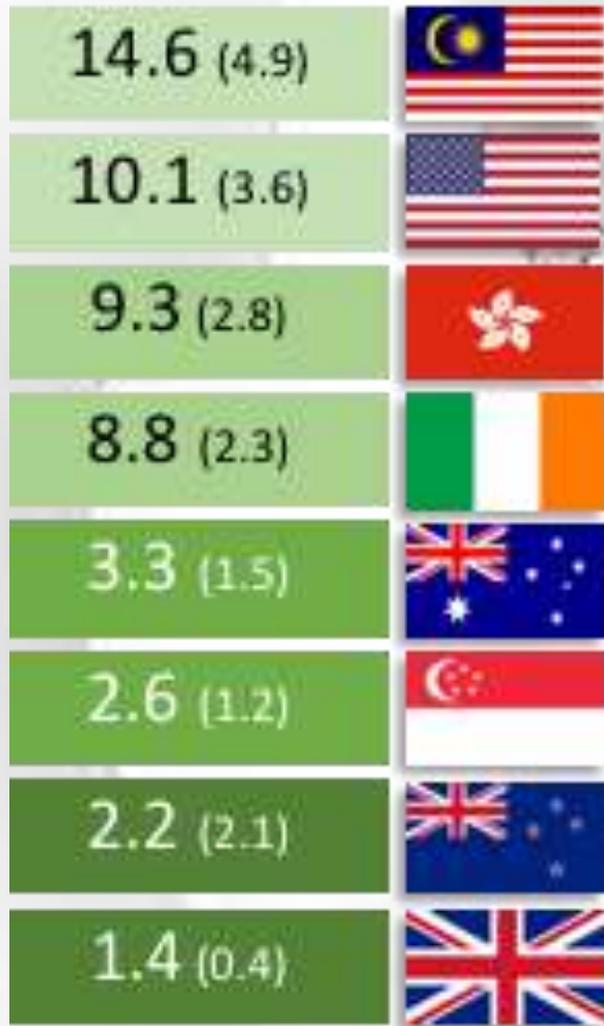
- OSH Performance of the industry - Summary
- The OSHCIM Guidelines – Voluntary Compliance
- When it becomes mandatory - The Duty Holders
- Cost of Incompliance
- Cost of Compliance
- OSHCIM – OSH Management for Construction Project

# INTRODUCTION

## OSH PERFORMANCE

# OSH HAS BEEN THE POOREST PERFORMING END OF THE INDUSTRY.

## Perbandingan



Bil. Pekerja 2017

**1.25j**

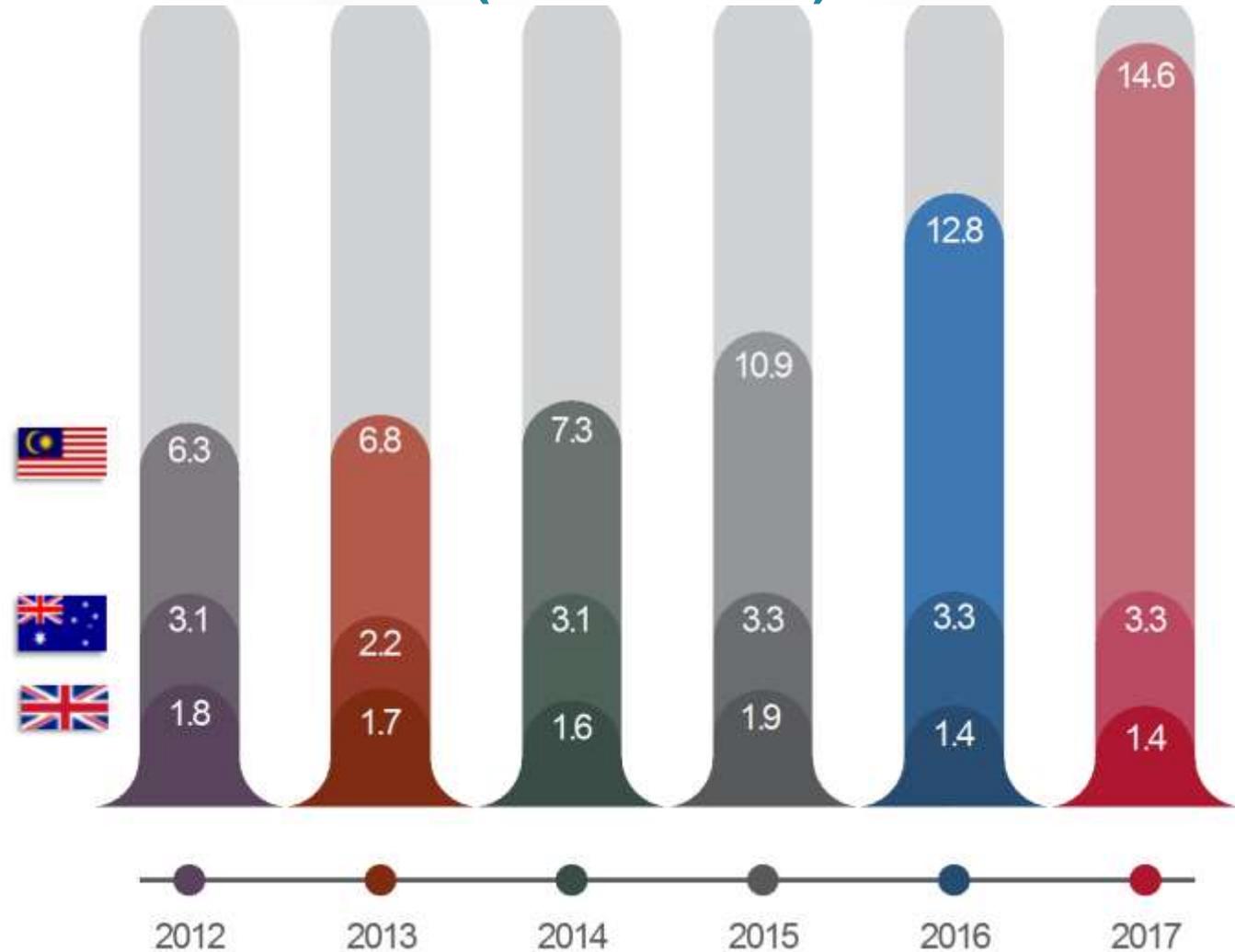
Kadar Kematian Pekerja

**Pembinaan**

per 100,000 pekerja

( ) Kadar kematian keseluruhan industri 2016/17

## CONSTRUCTION FATAL ACCIDENT RATES (2012 – 2017)



# OSH HAS BEEN THE POOREST PERFORMING END OF THE INDUSTRY.

## Perbandingan



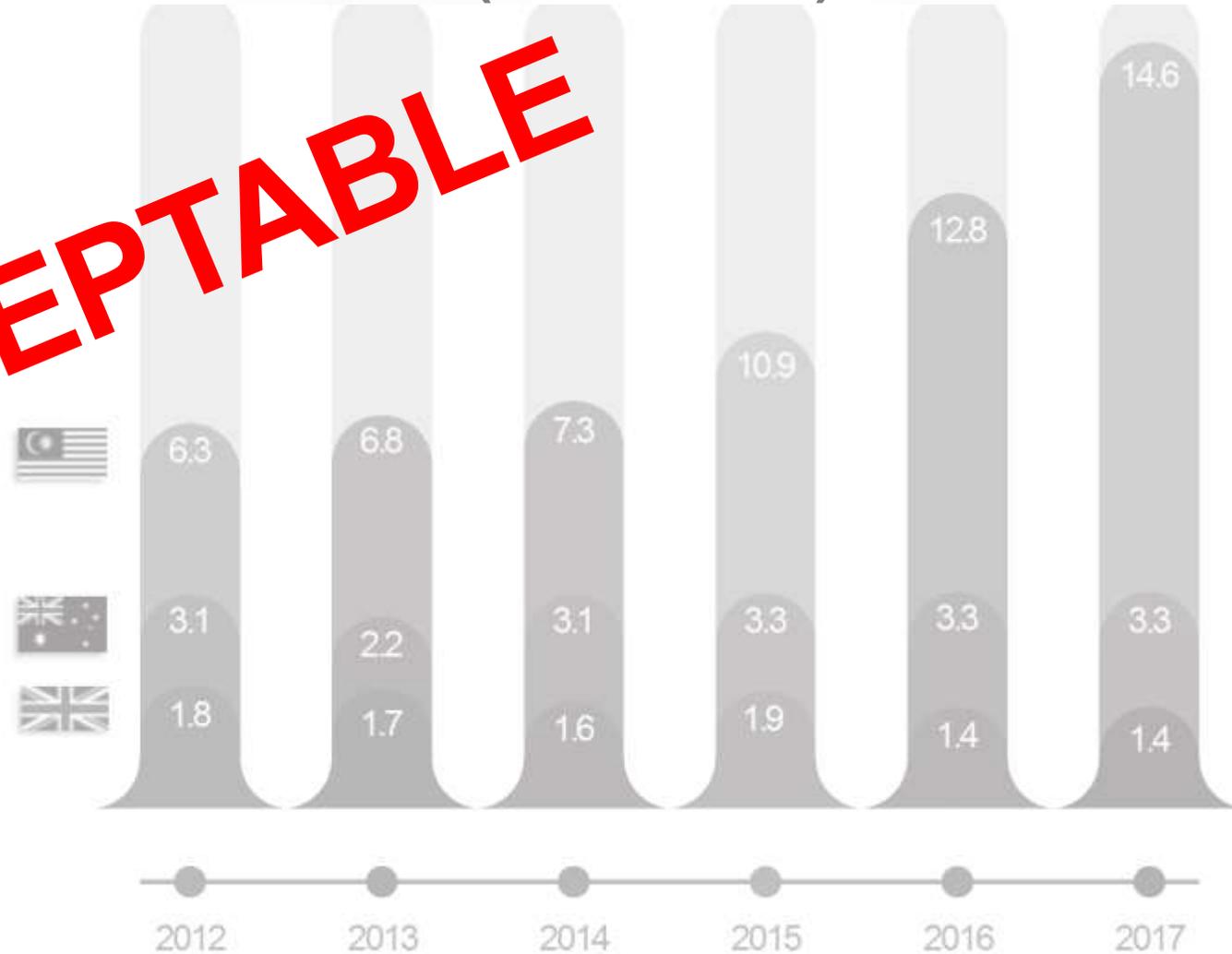
Bil. Pekerja 2017

**1.25j**

Kadar Kematian Pekerja  
Pembinaan  
per 100,000 pekerja

## CONSTRUCTION FATAL ACCIDENT RATES (2012 – 2017)

**UNACCEPTABLE**



**SAFETY  
AND  
HEALTH  
FAILINGS**

**=**

**LEGACY OF PAIN  
+  
SUFFERING  
+  
LIFETIME HUMAN  
MISERY**

# RELIANCE ON ENFORCEMENT

## ACCORDING TO DOSH ENFORCEMENT 2018

**10,733**

**4**

**4,215**

**5,077**

**RM1,913,900**

Bil. Pemeriksaan  
Operasi Tapak Bina  
Notis Perbaikan  
Notis Larangan  
Denda

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It's not enough that we do our best;  
Sometimes we have to do what's required.

Winston Churchill

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## CHALLENGES 2019

**14 ribu** Bil. Tapak Aktif

**75 ribu** Kontraktor

**101** Pegawai SKB



## Over-reliance to DOSH inspections

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DOSH opinion is that it is everyone's duty.  
The risk must be managed by those who create it.

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There is very little ownership of the risks by much of the industry.

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More workers are getting killed each year while working on your project.

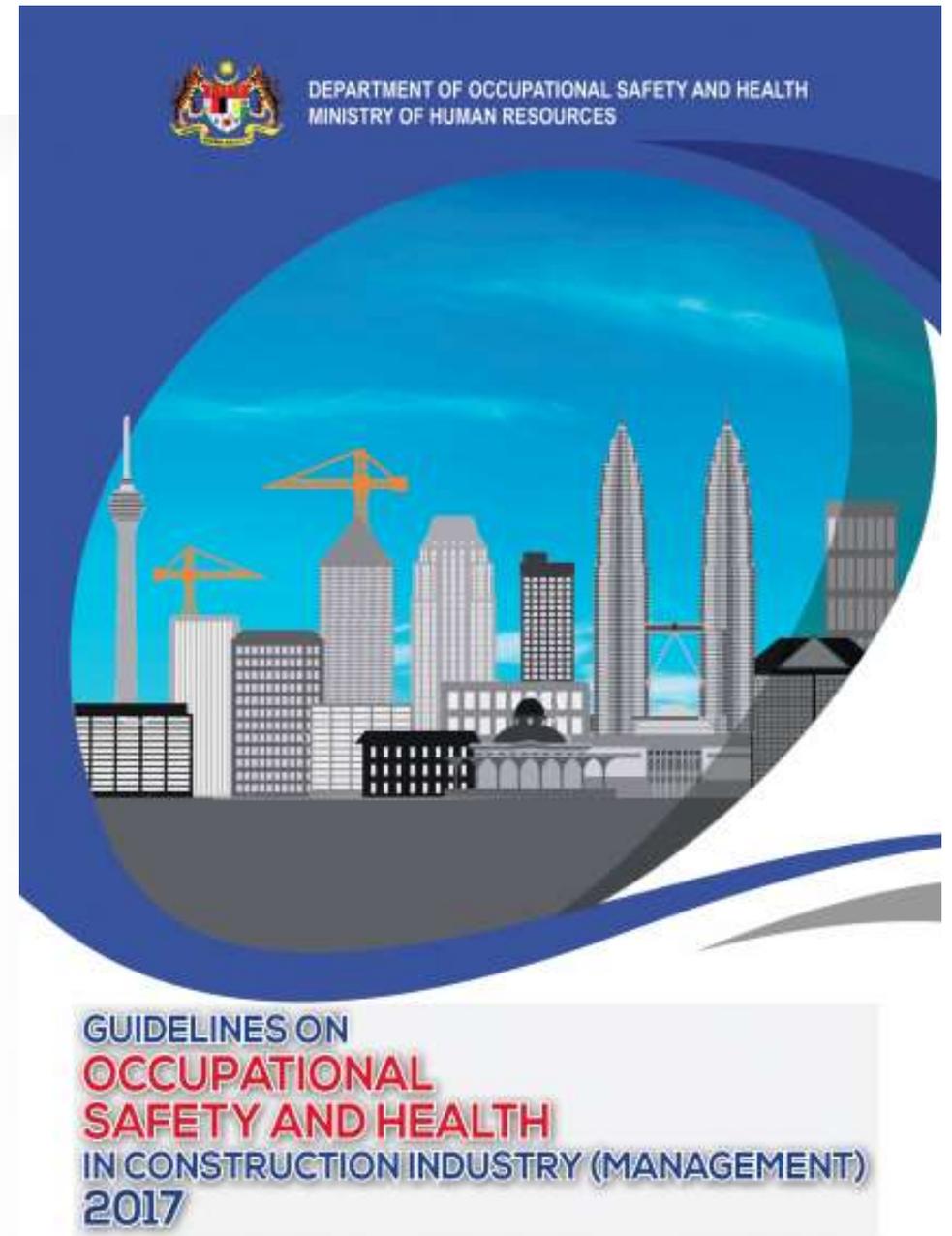
They may not be your workers, but are employed by the contractor to build on your behalf.

Without commitment and influence from clients/ developer, little likelihood of an improvement can be made.

Nic Rigby, HSE UK

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# “ THE GUIDELINES



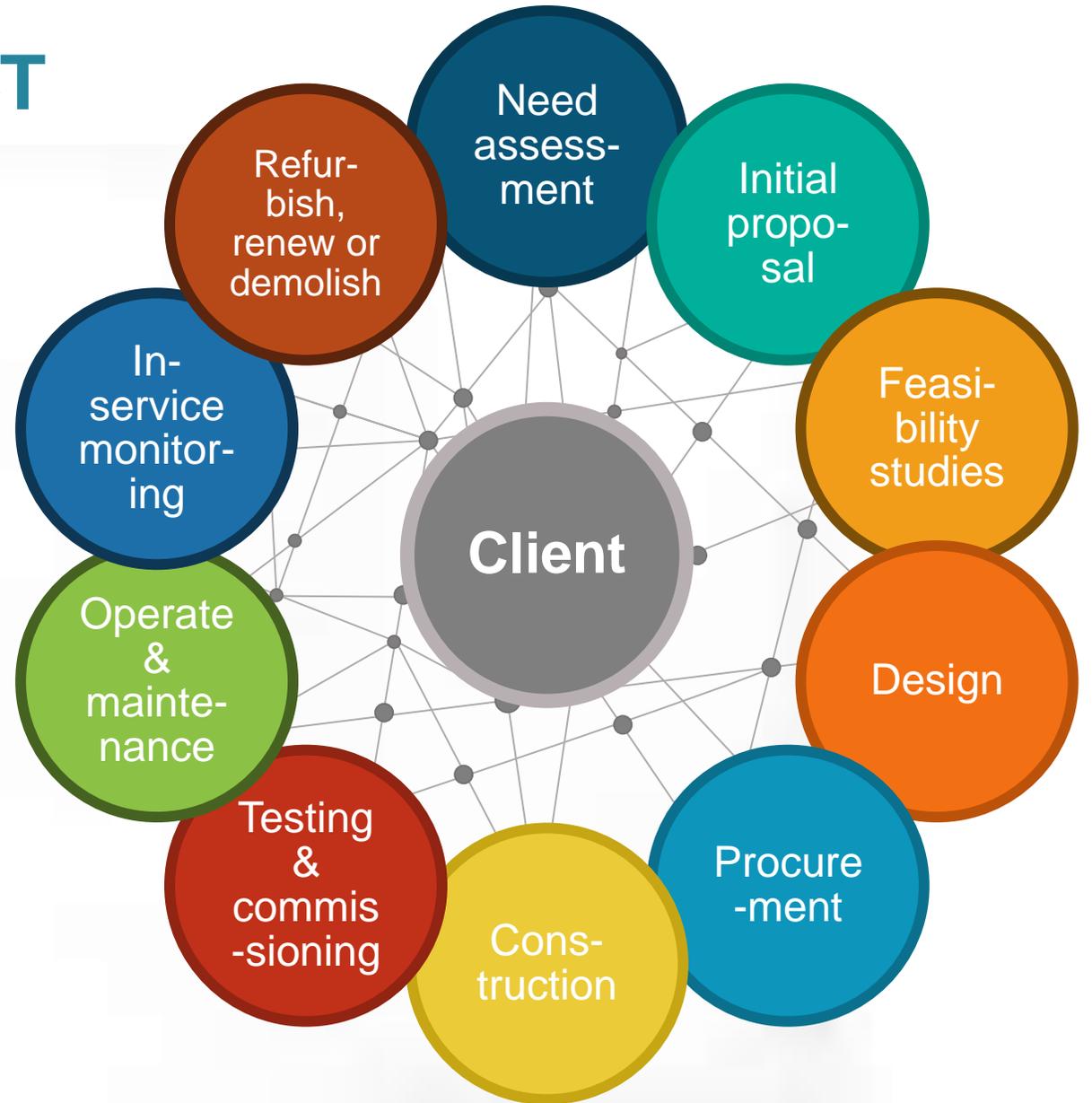
# THE LIFE CYCLE OF A PROJECT

According to BS6079-1 as published in Civil Engineering Procedure. 7<sup>th</sup> ed. 2016. ICE Publishing.

Projects can vary in **scale, complexity, degree of innovation, urgency and duration**; the magnitudes of which have implications for program (how the activities will be sequenced), **schedule** (how long the activities will take) and **cost**.

**Phases are not necessarily discrete and sequential.**

The method of procurement may lead to overlaps, particularly in the case of unexpected, urgent or accelerated projects.



**RISKS IS NO LONGER THE RESPONSIBILITY OF ONE PARTY – THE CONTRACTOR**

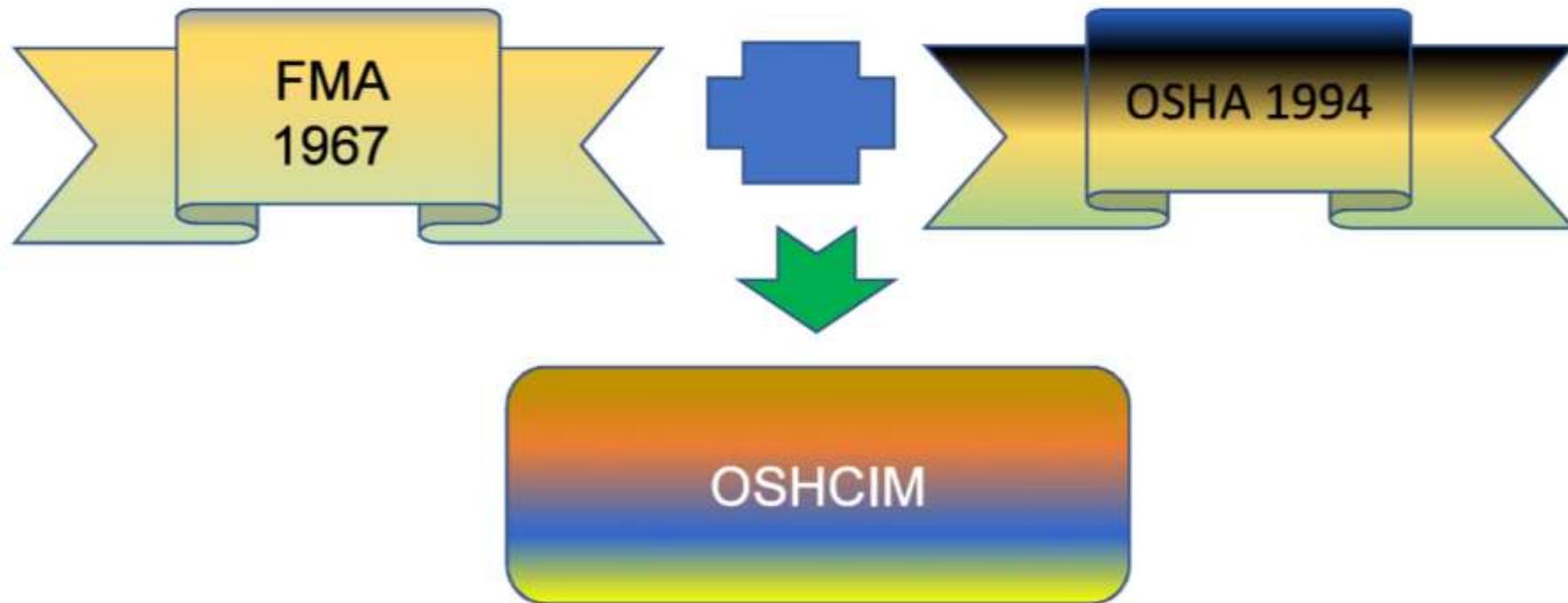
# FUNDAMENTAL SHIFTS

**OSHA moved emphasis to individuals and their duties**

The aims are:

- to improve management of safety and health; and
- to make more explicit what is required from employers

# FUNDAMENTAL SHIFTS



# Messages from the Director General, DOSH

To trigger improvements in the safety and health performance, the pre requisite is for every stakeholder in the industry to work together towards a set of common objectives. To realise that, the Guidelines of Occupational Safety and Health in Construction Industry (Management) is developed to recommend the **minimum roles of every stakeholder** and how they can execute their responsibilities. The guidelines are developed based on the Prevention through Design (PtD) principle and the UK's Construction (Design and Management) Regulations, and also reverberated the spirit of the Occupational Safety and Health Act (OSHA), which clearly places **responsibility** on those **who create risk to manage it**. These guidelines provide practical guidance to the client, designer and contractor on the management of safety, health and welfare when carrying out construction projects. Standing at the pinnacle of the construction industry supply chain, the **chief responsibility falls to the client**, the project proponent or the owner of the project. The role of the client is of paramount importance to the excellent safety performance of a project, especially in **ensuring competent people are appointed at the right time**. The designer and the contractor have important roles in managing the pre-construction and construction phases, respectively. Between these three key stakeholders, there should be good cooperative governance, effective communication and adequate information, instruction, training and supervision. Harnessing of workers' involvement to promote and develop effective measures completes the key elements of recommendations in the guidelines.

# Messages from the Director General

Our primary target after publishing these guidelines is to make the recommended responsibilities in these guidelines **mandatory**.

Long ago, we have recognised that the government cannot accomplish the improvements alone, and now is the time for us all to work together to make this happen. It is high time that each stakeholder in the construction industry to grasp this golden opportunity to understand their role and become better at executing their responsibilities, as recommended by these guidelines. DOSH will continue to play our part, and I am sure that you will want to play yours too.



DEPARTMENT OF OCCUPATIONAL SAFETY AND HEALTH  
MINISTRY OF HUMAN RESOURCES



**Director General**

**Department of Occupational Safety and Health**

GUIDELINES ON  
OCCUPATIONAL  
SAFETY AND HEALTH  
IN CONSTRUCTION INDUSTRY (MANAGEMENT)  
2017

# THE DUTY HOLDERS

# THE UK CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 (CDM 2015)

These 'dutyholders' are defined as follows:

Designer - An organisation or individual whose work involves preparing or modifying designs, drawings, specifications, bills of quantity or design calculations. Designers can be architects, consulting engineers and quantity surveyors, or anyone who specifies and alters designs as part of their work. They can also include tradespeople if they carry out design work. **The designer's main duty is to eliminate, reduce or control foreseeable risks that may arise during construction work, or in the use and maintenance of the building once built.** Designers work under the control of a principal designer on projects with more than one contractor.

Principal designer - A designer appointed by the client to control the pre-construction phase on projects with more than one contractor. **The principal designer's main duty is to plan, manage, monitor and coordinate health and safety during this phase,** when most design work is carried out.

# SUMMARY OF DUTIES UNDER UK CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS 2015 (CDM 2015)

<p><u>Designers</u> - Organisations or individuals who as part of a business, prepare or modify designs for a building, product or system relating to construction work.</p>	<p>When preparing or modifying designs, eliminate, reduce or control foreseeable risks that may arise during:</p> <ul style="list-style-type: none"><li>•construction</li><li>•the maintenance and use of a building once it is built</li></ul> <p>Provide information to other members of the project team to help them fulfil their duties.</p>
<p><u>Principal designers</u> - Designers appointed by the client in projects involving more than one contractor. They can be an organisation or an individual with sufficient knowledge, experience and ability to carry out the role.</p>	<p>Plan, manage, monitor and coordinate health and safety in the pre-construction phase of a project. This includes:</p> <ul style="list-style-type: none"><li>•identifying, eliminating or controlling foreseeable risks</li><li>•ensuring designers carry out their duties</li></ul> <p>Prepare and provide relevant information to other dutyholders.</p> <p>Liaise with the principal contractor to help in the planning, management, monitoring and coordination of the construction phase.</p>

# Guidelines on Occupational Safety and Health in Construction Industry (Management) 2017

## 3.2 Designers and contractors seeking appointment

43 Designers and contractors (including individuals and sole traders) should be able to **demonstrate they have the safety and health skills, knowledge and experience** to carry out the work for which they are seeking appointment. This is the case for individuals working for larger organisations or for themselves – in particular, self employed designers.

## 4 Designers

### 4.1 Who are Designers

52 A designer is an organisation or individual, who in the course or furtherance of a business:

- (a) **prepares or modifies a design for a construction project (including the design of temporary works)**; or
- (b) arranges for, or instructs someone else under their control to do so, relating to a structure, or to a product or mechanical or electrical system intended for a particular structure, and a person is deemed to prepare a design where a design is prepared by a person under their control.

# Guidelines on Occupational Safety and Health in Construction Industry (Management) 2017

## 4.5 Who is a principal designer?

74 A **principal designer is the designer with control over the pre-construction phase of the project.** This is the very earliest stage of a project from concept design through to planning the delivery of the construction work. The principal designer should be appointed in writing by the client.

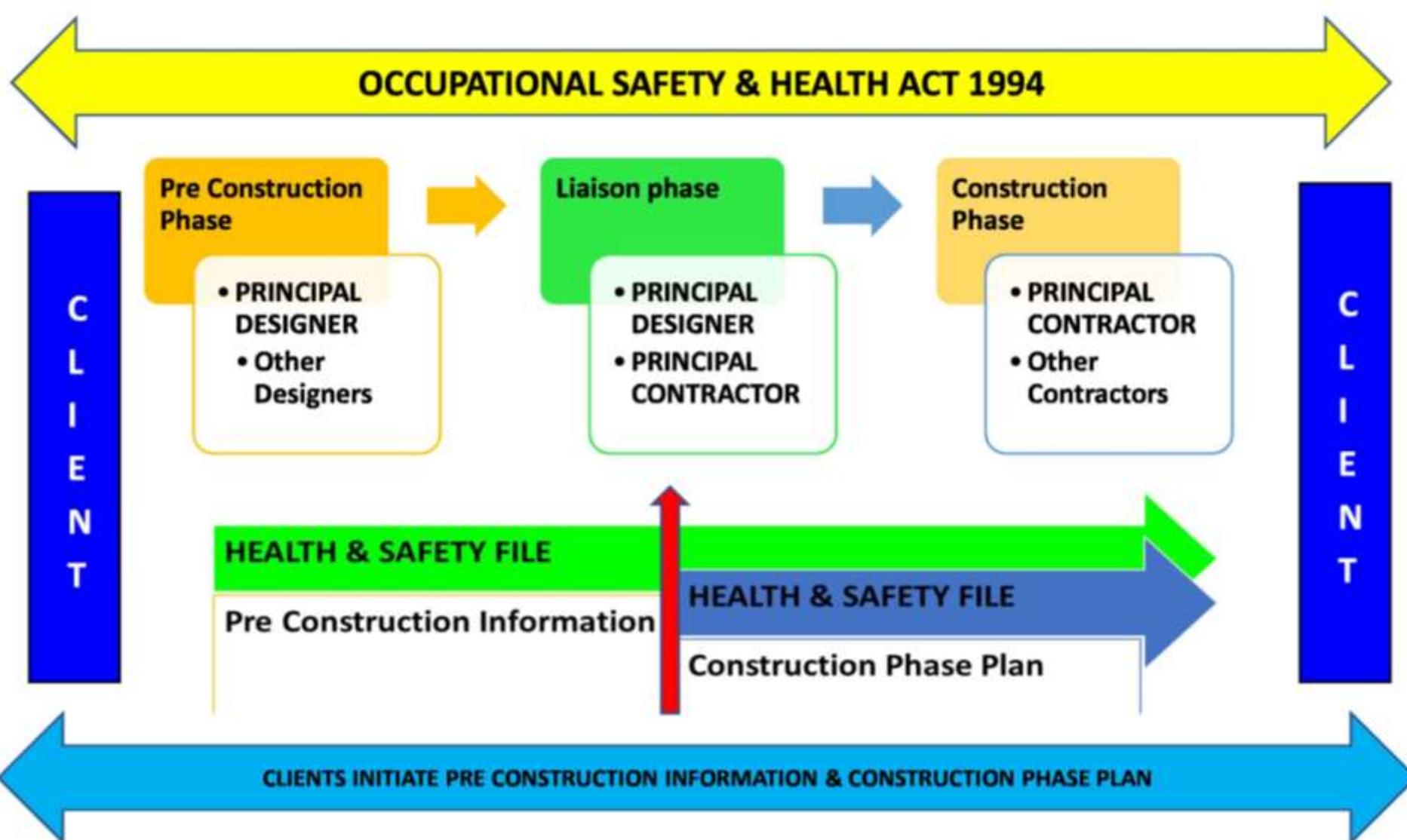
75 The principal designer can be an organisation or an individual that has:

(a) the technical knowledge of the construction industry relevant to the project; (b) the skills, knowledge and experience to understand, manage and coordinate the pre-construction phase, including any design work carried out after construction begins.

Where the principal designer is an organisation, it should have the organisational capability to carry out the role.

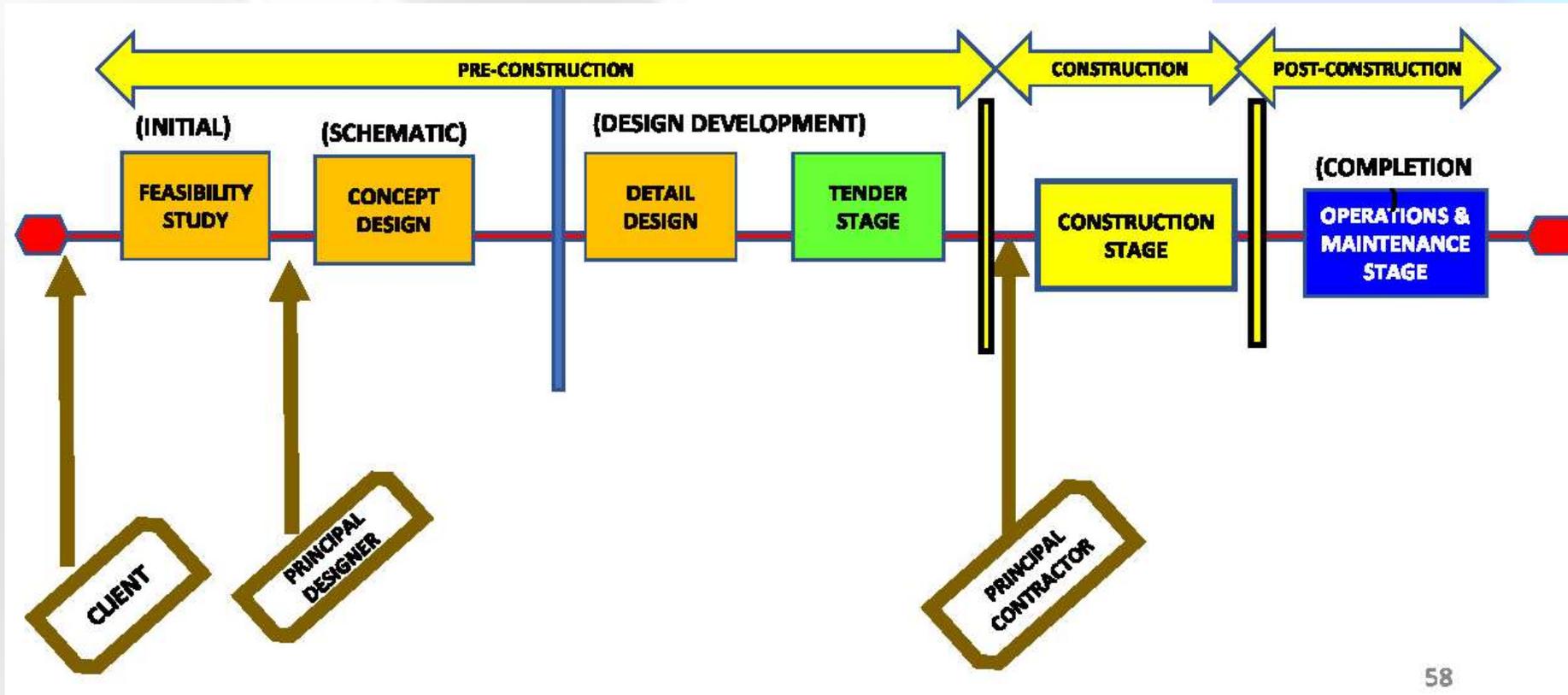


# Guidelines on Occupational Safety and Health in Construction Industry (Management) 2017



HEALTH  
INDUSTRY (MANAGEMENT)

# Guidelines on Occupational Safety and Health in Construction Industry (Management) 2017

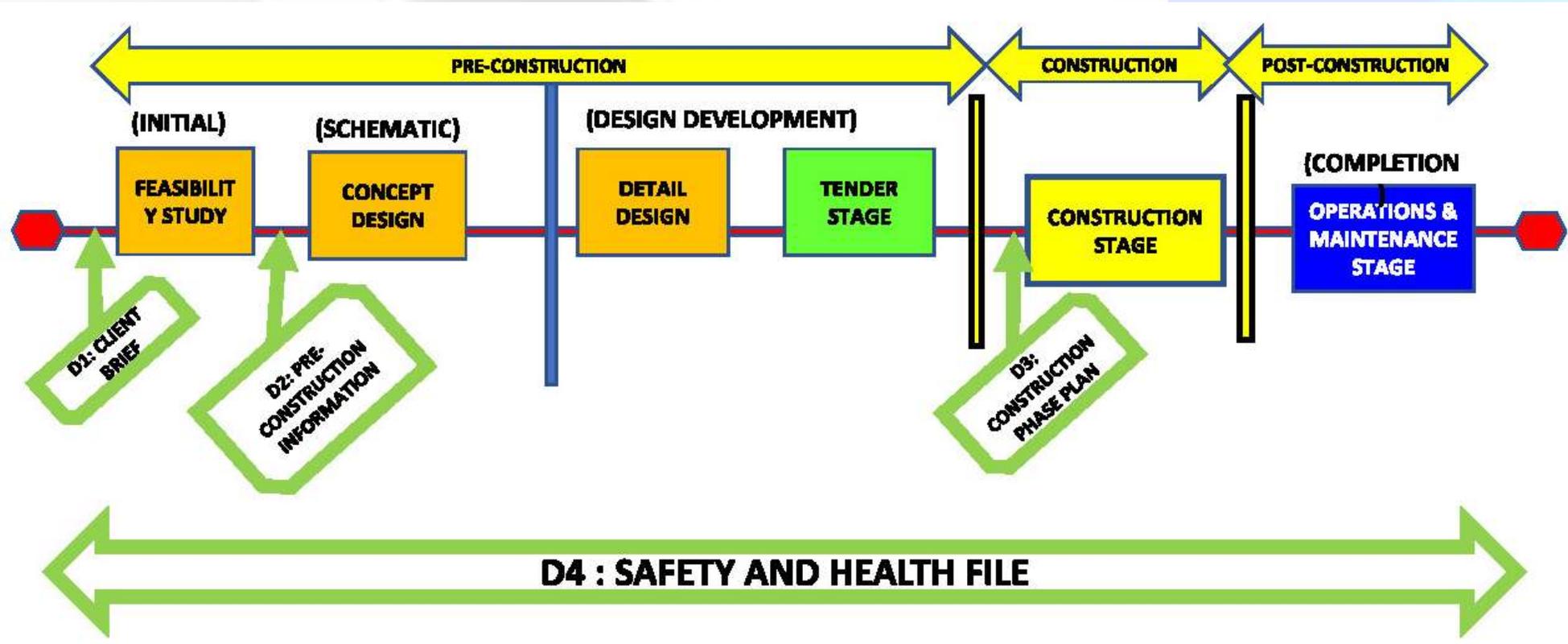


## APPOINTMENT OF PD & PC

58

GUIDELINES ON  
OCCUPATIONAL  
SAFETY AND HEALTH  
IN CONSTRUCTION INDUSTRY (MANAGEMENT)  
2017

# Guidelines on Occupational Safety and Health in Construction Industry (Management) 2017

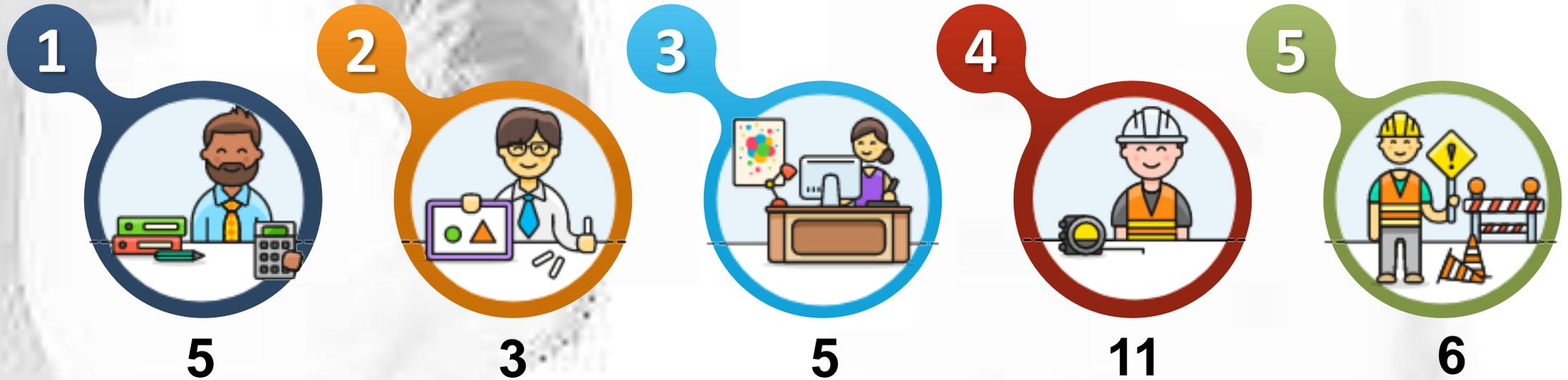


## OSHCIM DOCUMENTATION

GUIDELINES ON  
OCCUPATIONAL  
SAFETY AND HEALTH  
IN CONSTRUCTION INDUSTRY (MANAGEMENT)  
2017

# STORYBOARD OF OSHCIM

Structure is simple & linear, following basics phases in project



The regulations create duties for the client, designer and contractor.



The client is any individual or organization that **carries out a construction project** as part of a business.

5 main responsibilities.

## Responsibilities

1. make suitable **arrangements for managing their project**, enabling those carrying it out to manage health and safety risks.

These arrangements include:

- appointing the contractors and designers to the project (including the **principal designer (PD)** and **principal contractor (PC)** on projects involving more than one contractor) while making sure they have the skills, knowledge, experience and organisational capability
- allowing sufficient time and resources for each stage of the project
- making sure that any PD and PC appointed carry out their duties in managing the project
- making sure suitable welfare facilities are provided for the duration of the construction work



## Responsibilities

2. **maintain and review the management arrangements** for the duration of the project
3. provide **pre-construction information** (PCI) to every designer and contractor either bidding for the work or already appointed to the project
4. ensure that the PC or contractor (for single contractor projects) prepares a **construction phase plan** (CPP) before that phase begins
5. ensure that the PD prepares a **safety and health file** (SHF) for the project and that it is revised as necessary and made available to anyone who needs it for subsequent work at the site



# WHAT SHOULD DESIGNER DO?

## 1. Preparing or modifying design

- Taking account of the general principles of prevention in design work
- Taking account of pre-construction information
- Eliminating, reducing or controlling foreseeable risks through design

## 2. Providing design information

Provide info to:

- Principal designer;
- Other designer;
- Principal contractor;
- Contractors.



## 3. Making client aware of their duties

## 4. Cooperating with other duty holders



A designer is an organization or individual that **prepares or modifies a design** for any part of a construction project, including the design of temporary works, or who arranges or instructs someone else to do it.

3 main responsibilities.

## Responsibilities

1. when preparing or modifying designs:
  - take account of any PCI provided by the client (and PD, if one is involved)
  - **eliminate foreseeable safety and health risks** to anyone affected by the project (if possible)
  - take steps to **reduce or control any risks** that cannot be eliminated
2. provide **design information** to:
  - the PD (if involved), for inclusion in the PCI and the SHF
  - the client and PC (or the contractor for single contractor projects) to help them comply with their duties, such as ensuring a CPP is prepared



## Responsibilities

1. when preparing or modifying designs:
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2. provide **design information** to:
  - the PD (if involved), for inclusion in the PCI and the SHF
  - the client and PC (or the contractor for single contractor projects) to help them comply with their duties, such as ensuring a Construction Phase Plan is prepared



## Responsibilities

3. **communicate, cooperate and coordinate** with:
  - any other designers (including the PD) so that all designs are compatible and ensure safety and health, both during the project and beyond
  - all contractors (including the PC), to take account of their knowledge and experience of building designs



This photo shows cast sockets along the open side of a stairway, The sockets make it convenient to install temporary or permanent guardrails.



Specify holes in columns at 21 and 42 inches above the floor slab. This design feature makes it easy to install cable or wire perimeter cables.



This photo shows equipment located on a roof. Positioning equipment at least 15 feet back from the roof edge will reduce the risk of falling when installing and servicing the equipment



Figure 4 Gantry systems can be designed to maintain atriums and skylights.



## SAFETY NET FALL ARREST SYSTEM SAVES TWO LIVES

### Freak just of wind put fall arrest and rescue plan to the ultimate test

It has been reported by *Fall Arrest Safety Equipment Training (FASET)* that on Wednesday 22nd June 2011 the lives of two roofers were saved by the safety netting installed by a FASET member.



We have spoken to the unnamed project principal contractor who confirms the incident describing the rescue operation as "really slick".

The roofworkers were working on the roof when a 'freak' gust of wind picked up a composite roof panel knocking both men from the roof and into the safety netting below.

### Work at height rescue plan instigated

The principal contractor immediately instigated the "site work at height rescue plan" and the workmen were lowered to the ground where they received [treatment](#) for the injuries sustained in the initial impact. FASET are publicising the incident and advising that when selecting a safety net installer contractors should ensure:

- riggers are 'certified' e.g. appropriate CSCS FASET Skills Card and
- the safety netting products installed are appropriate, properly maintained and inspected.

FASET carry out biennial member health & safety audits which every member must pass and the nets used by FASET members must meet the required standard. Confirmation of membership status or validity of a FASET Membership Certificate can be obtained by visiting the [FASET members list](#).



# The terrifying moment two window cleaners were left clinging to their platform after cable snapped 21 storeys up in Chile

- The two men had been cleaning windows at Crowne Plaza hotel in Santiago
- They were dangling from a scaffold for nearly an hour before being rescued
- Rescuers had to be lowered from the building's roof to reach the two men



© REUTERS



Practical and safe methods of window cleaning (such as from the inside).



Consider buildability, operability, maintainability throughout the design process  
Design review should include hazard elimination & risk reduction





Site layout that does not allow **adequate room for delivery and/or storage of materials**



Specification of curtain wall or panel systems with provision for **tying or raking scaffolds**





A principal designer is a designer who is an organization or individual (on smaller projects) appointed by the client to take **control of the pre-construction phase** of any project involving more than one contractor.

5 main responsibilities.

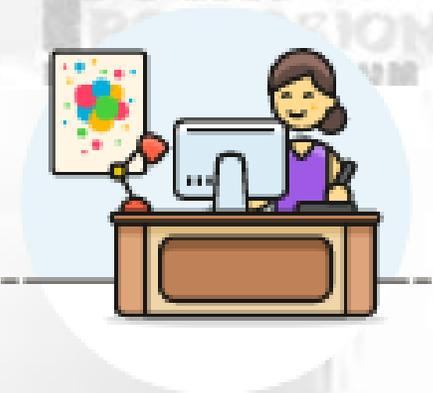
## Responsibilities

1. **plan, manage, monitor and coordinate safety and health in the pre-construction phase.** In doing so they must take account of relevant information (such as an existing SHF) that might affect design work carried out both before and after the construction phase has started
2. help and advise the client in bringing together PCI, and provide the information designers and contractors need to carry out their duties



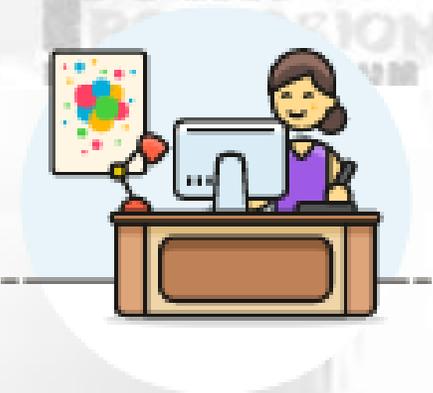
## Responsibilities

1. **plan, manage, monitor and coordinate safety and health in the pre-construction phase.** In doing so they must take account of relevant information (such as an existing SHF) that might affect design work carried out both before and after the construction phase has started
2. **help and advise the client in bringing together PCI, and provide the information designers and contractors need to carry out their duties**



## Responsibilities

- 3. work with any other designers on the project to eliminate foreseeable safety and health risks to anyone affected by the work and, where that is not possible, take steps to reduce or control those risks**
4. ensure that everyone involved in the pre-construction phase communicates and cooperates, coordinating their work wherever required
5. liaise with the PC, keeping them informed of any risks that need to be controlled during the construction phase



## Responsibilities

3. work with any other designers on the project to eliminate foreseeable safety and health risks to anyone affected by the work and, where that is not possible, take steps to reduce or control those risks
4. ensure that everyone involved in the pre-construction phase **communicates and cooperates, coordinating** their work wherever required
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4. ensure that everyone involved in the pre-construction phase communicates and cooperates, coordinating their work wherever required
5. **liaise with the PC**, keeping them informed of any risks that need to be controlled during the construction phase



A principal contractor is appointed by the client to **control the construction phase** of any project involving more than one contractor.

11 main responsibilities.

## Responsibilities

1. **plan, manage, monitor and coordinate the entire construction phase**
2. take account of the safety and health risks to everyone affected by the work (including members of the public), in planning and managing the measures needed to control them
3. liaise with the client and PD for the duration of the project to ensure that all risks are effectively managed
4. prepare a written CPP before the construction phase begins, implement, and then regularly review and revise it to make sure it remains fit for purpose
5. have ongoing arrangements in place for managing safety and health throughout the construction phase



## Responsibilities

6. **consult and engage with workers** about their safety, health and welfare
7. ensure **suitable welfare facilities** are provided from the start and maintained throughout the construction phase
8. check that anyone they appoint has the skills, knowledge, experience and, where relevant, the organisational capability to carry out their work safely and without risk to health
9. ensure all workers have site-specific inductions, and any further information and training they need
10. take steps to prevent unauthorised access to the site
11. liaise with the PD to share any information relevant to the planning, management, monitoring and coordination of the pre-construction phase



A contractor is anyone who directly **employs or engages construction workers or manages construction work.**

6 main responsibilities.

## Responsibilities

1. plan, manage and monitor all work carried out by themselves and their workers, taking into account the risks to anyone who might be affected by it (including members of the public) and the measures needed to protect them
2. check that all workers they employ or appoint have the skills, knowledge, training and experience to carry out the work, or are in the process of obtaining them
3. make sure that all workers under their control have a suitable, site-specific induction, unless this has already been provided by the PC
4. provide appropriate supervision, information and instructions to workers under their control



## Responsibilities

5. ensure they do not start work on site unless reasonable steps have been taken to prevent unauthorised access
6. ensure suitable welfare facilities are provided from the start for workers under their control, and maintain them throughout the work

In addition to the above responsibilities, contractors working on projects involving more than one contractor must:

1. coordinate their work with the work of others in the project team
2. comply with directions given by the PD or PC
3. comply with parts of the CPP relevant to their work

# COST OF INCOMPLIANCE

# COST OF INCOMPLIANCE – CDM PROSECUTIONS

Version	No. of Prosecution	Largest fine (GBP)
CDM 1994	8	16,000
CDM 2007	305	1,500,000
CDM 2015	95	800,000

In 2018, a Manchester-based property developer (contractor) was sentenced to 8 months in prison for breaches under CDM.

<https://www.haspod.com/blog/cdm/cdm-2015-prosecutions>



# COST OF INCOMPLIANCE – CDM PROSECUTIONS

11 breaches



1 breach



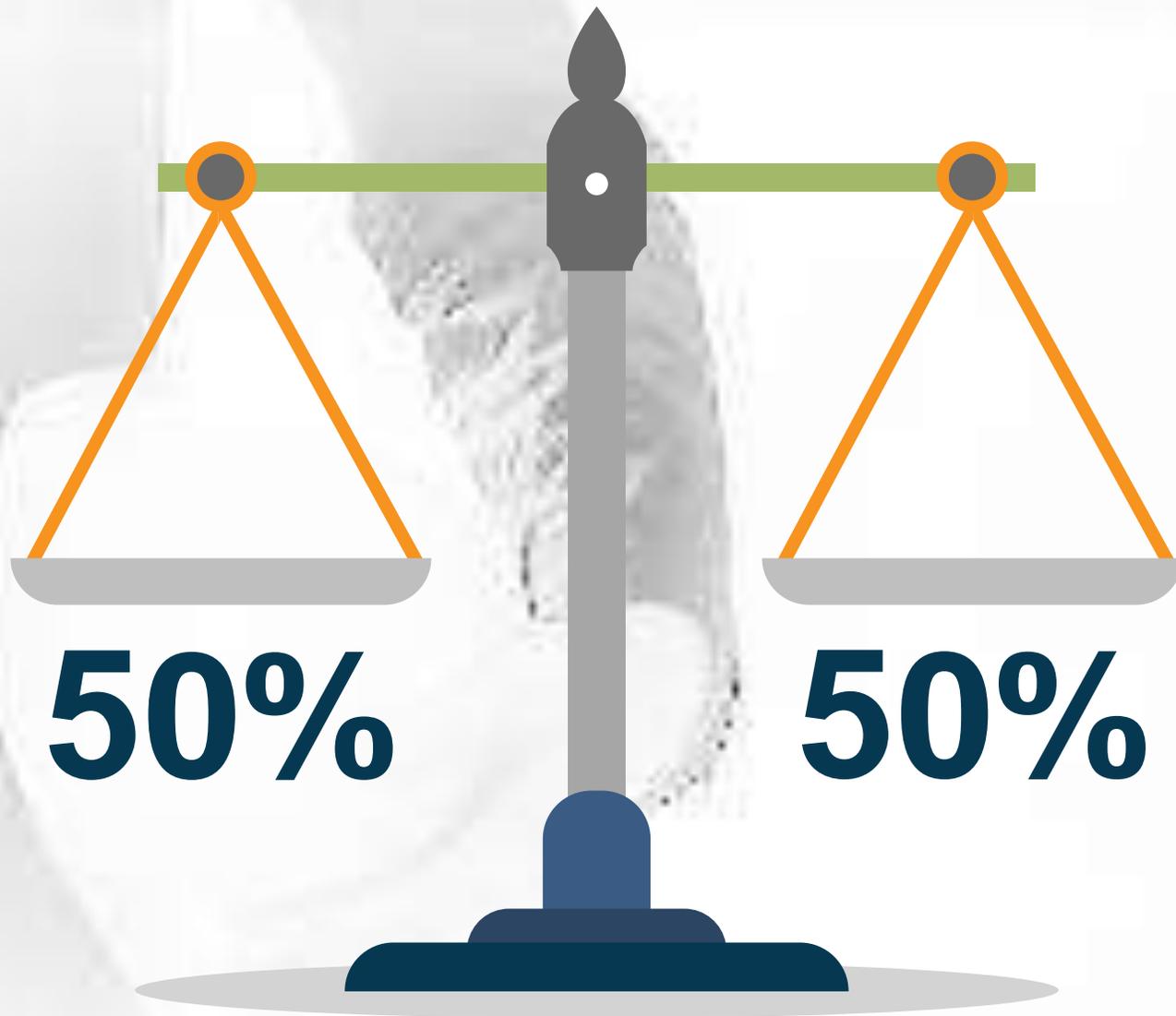
83 breaches



<http://www.hse.gov.uk/prosecutions/>

# COST OF COMPLIANCE

# COST BENEFIT



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The costs and benefits arising from the Regulations are likely in practice to be at least in balance.

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HSC (1992)

# COST BENEFIT

Costs	Benefits
Professionals' fees	Site accidents reduction
Designers' risk assessments	Improving management procedures
Pre-Construction Information	Improving productivity
Construction Phase Plan	Improving quality
Safety and Health File	

Beal (2007)

# COST OF COMPLIANCE

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The cost of CDM (1994) does not appear to exceed 2% of the project value for any duty holder. The proportion of the project value decreases as the project value increases (particularly for clients and principal contractors).

HSE Report RR555 (2007)

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# COST OF COMPLIANCE



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The cost of compliance was 0.45%  
of the companies' turnover.

Baxendale & Jones (2000)

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# OSHCIM IS OSH MANAGEMENT

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## CDM Regulations

The regulations bring **safety and health management**, *on obligatory basis*, into the planning and design of construction work, of all projects

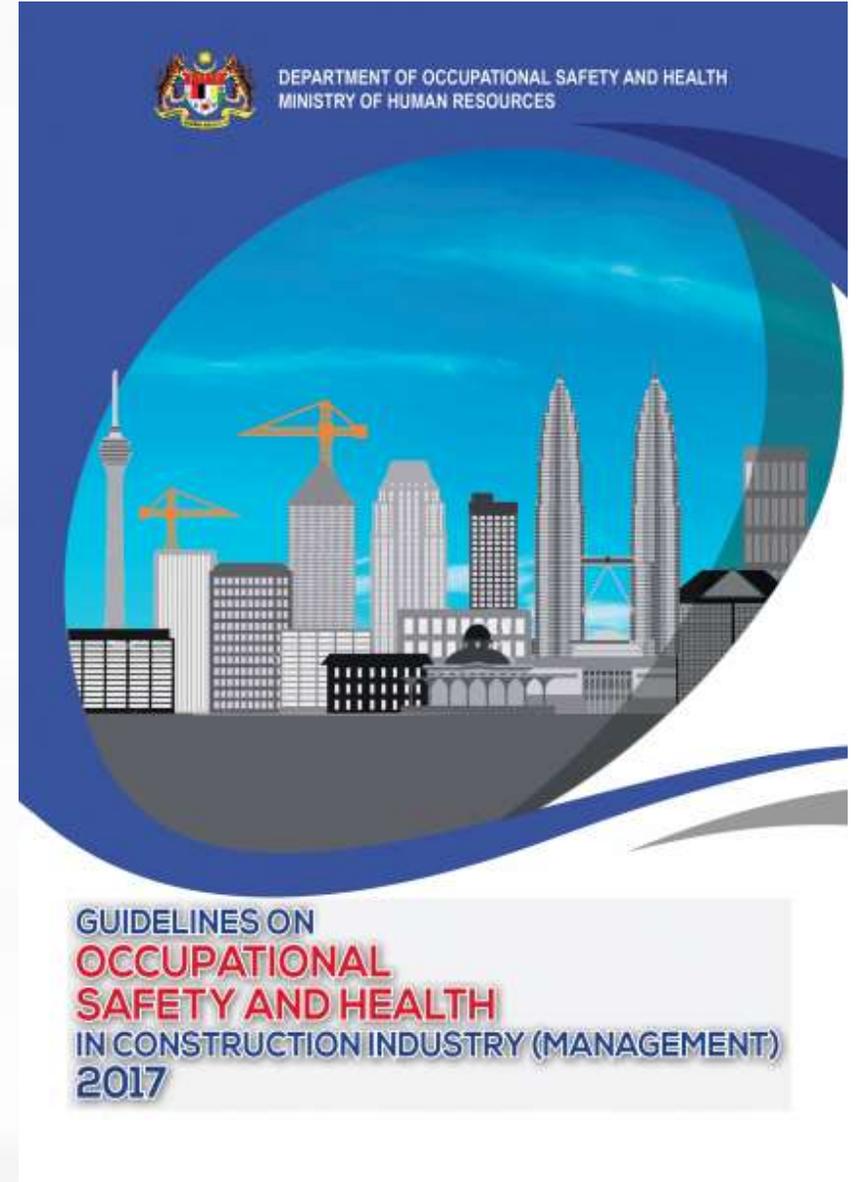
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# M STANDS FOR MANAGEMENT

It is no coincidence that **project management terms are liberally sprinkled throughout the CDM Regulations**, for both project management and health and safety risk management are implicitly combined.

Both rely on the integrated team concept for success and each represents a **'journey of constant improvement'**.

Summerhayes. 2010. John Wiley & Sons.



# M STANDS FOR MANAGEMENT

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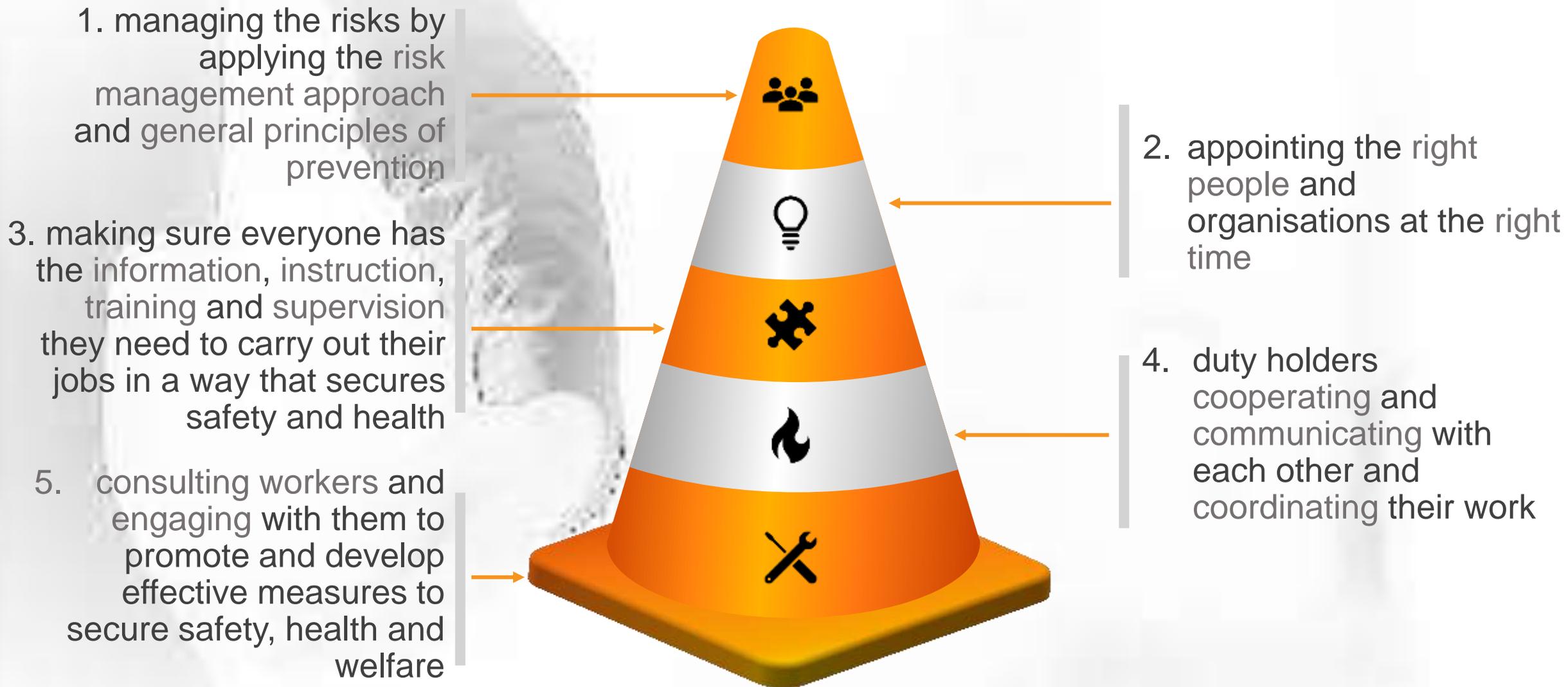
*Health and safety risk management* has always been an integral sub-set of project management irrespective of any legislative connection.

Summerhayes. 2010. John Wiley & Sons.

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Fundamental to this is the role of the Architect, who is not only close to the start of the supply chain but also occupies influential positions in both health and safety management contribution and communication.

# KEY ELEMENTS OF OSHCIM



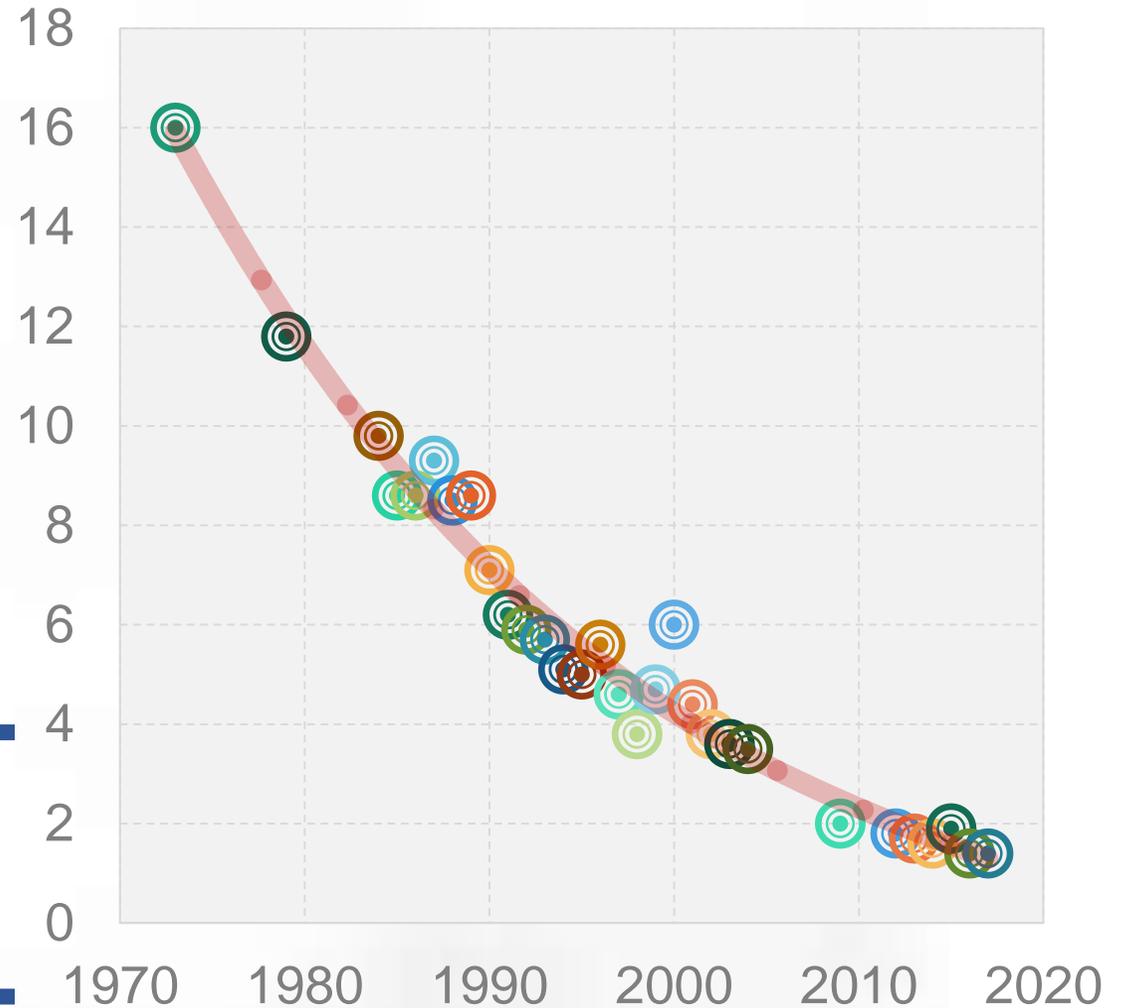
# THE BENEFIT

# THE BENEFIT

The main quantifiable benefit of CDM regulations is accident level reduction.

Baxendale & Jones (2000)

## UK Construction Fatality Rate/100 000 workers

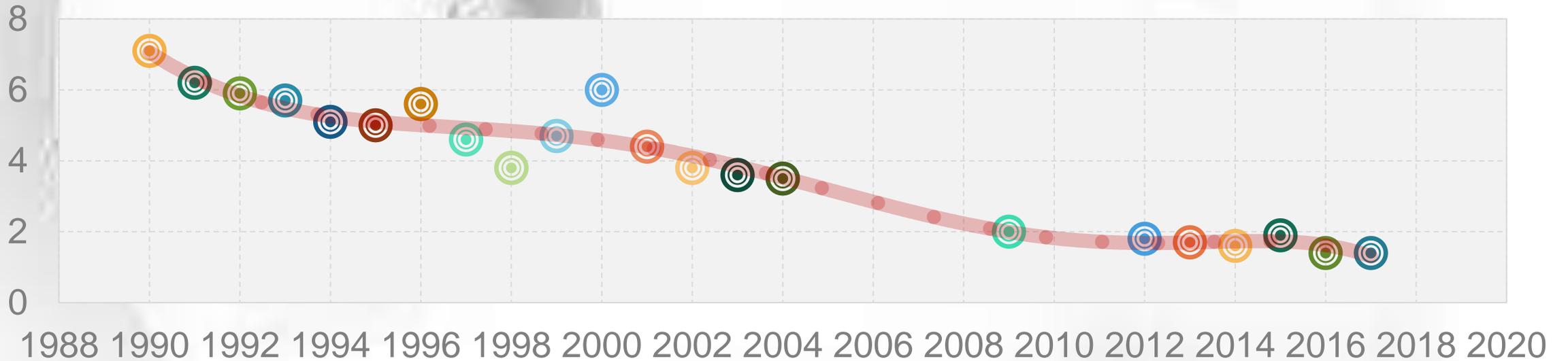




In 10 years following the introduction of the CDM 1994, an improvement of 30% in the annual statistics for fatalities.

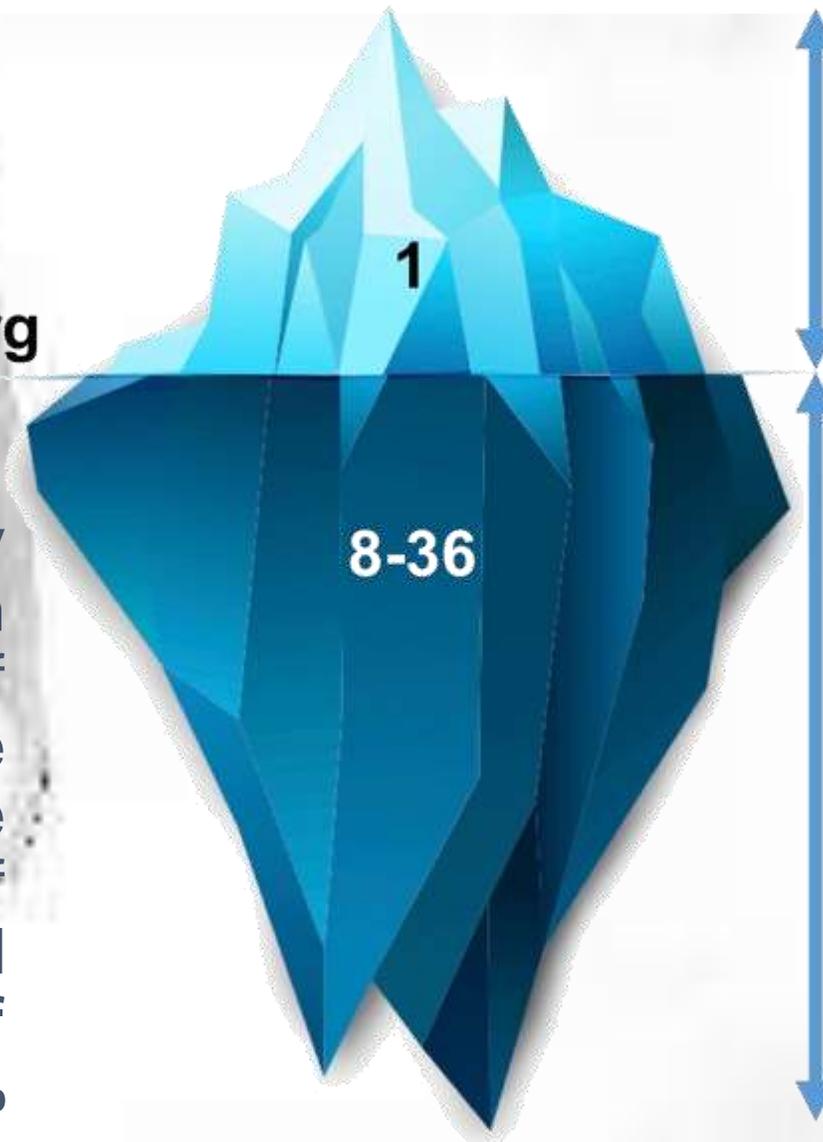
Joyce (2015)

**UK Construction Fatality Rate/100 000 workers**



# COSTS OF ACCIDENT

## Accident Iceberg



### Insured costs

Injury, ill-health, damage

### Uninsured costs

- Product and material damage
- Legal costs
- Emergency supplies
- Cleaning up site
- Production delays
- Temporary labour
- Lost orders
- Investigation time
- Fines
- Loss of expertise etc.

“Lack of adequate safety measures goes beyond health concerns, since the costs of construction injuries can have a substantial impact on the financial success of construction organizations and **increase the overall costs of construction up to 15%**

Hallowell (2011)

# BALANCING ACT

## **Economic and managerial aspects**

including those related to human resources, project and time management, plus the costs and expenditure



## **Humanitarian, social, and ethical concerns**

of the well-being and safety of the workers

# RISK SHARING & OWNERSHIP



It seems only fair and equitable that developers and designers take their share of the ownership of risk environment which they have created.

CIDB Technical Publication No: 183. 2018



**Those with greatest power are at least risk – those with least power are at the greatest risk.**

Nic Rigby, Principal HM Inspector, 2018

# SIGNIFICANCE OF DESIGN PROCESS TO OSH

Across US, **42%** of construction fatalities were **related to design issues** between the years 1990 and 2003<sup>1</sup>

A 1991 study done in Europe found that **60%** of fatalities were **the result of decisions made before the site work even began**<sup>2</sup>

**63%** of all fatalities and injuries could be attributed to design decisions of lack of planning<sup>3</sup>

Frequently, construction design and construction process are interlinked, with the process being dictated by the design and decisions from the design team.

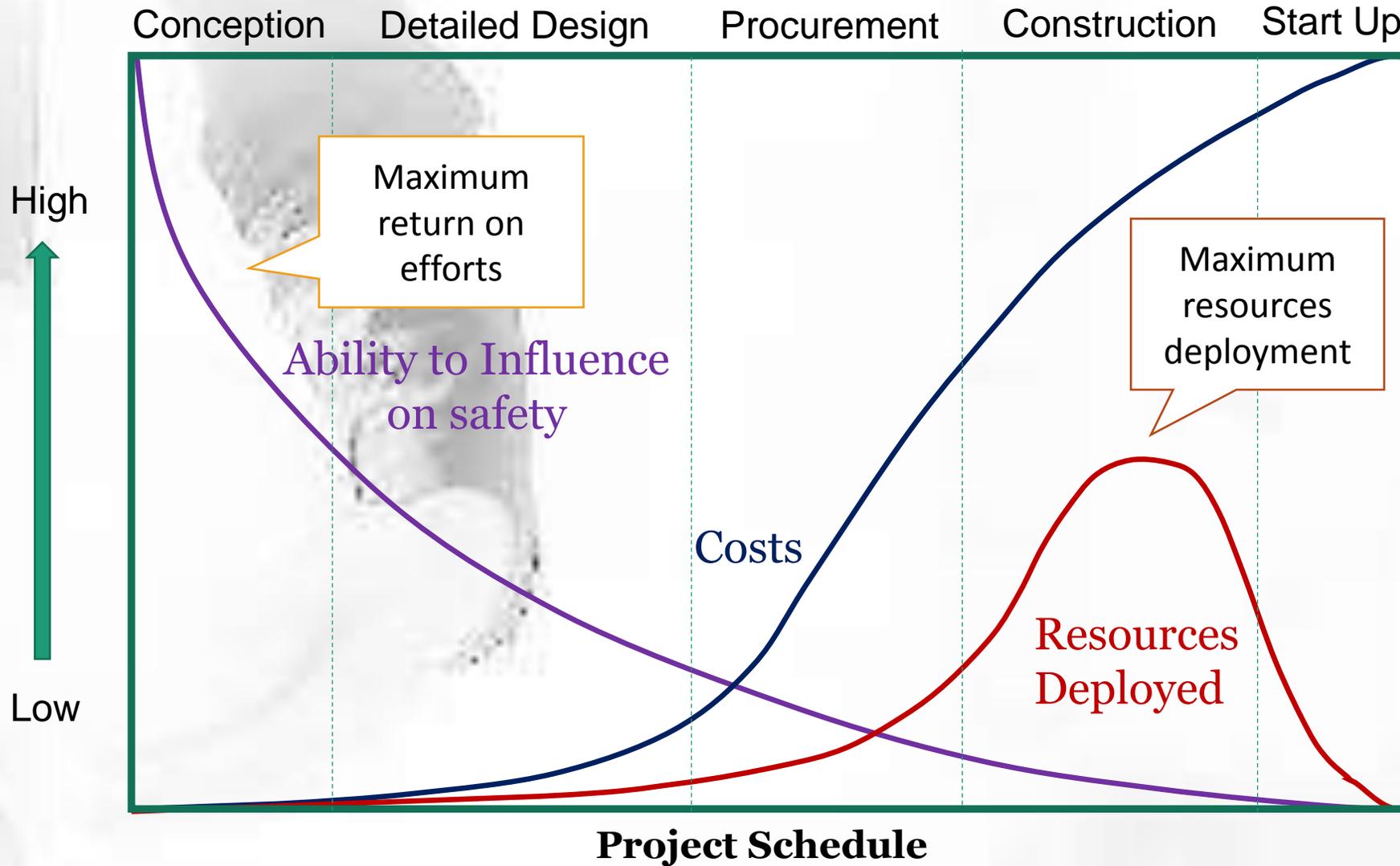
Eg. pre-assembly allows the work to be performed at a more convenient working height, without space limitations.

<sup>1</sup> Behm, M., Linking construction fatalities to the design for construction concept (2005)

<sup>2</sup> European Foundation for the Improvement of Living and Working Conditions (1991)

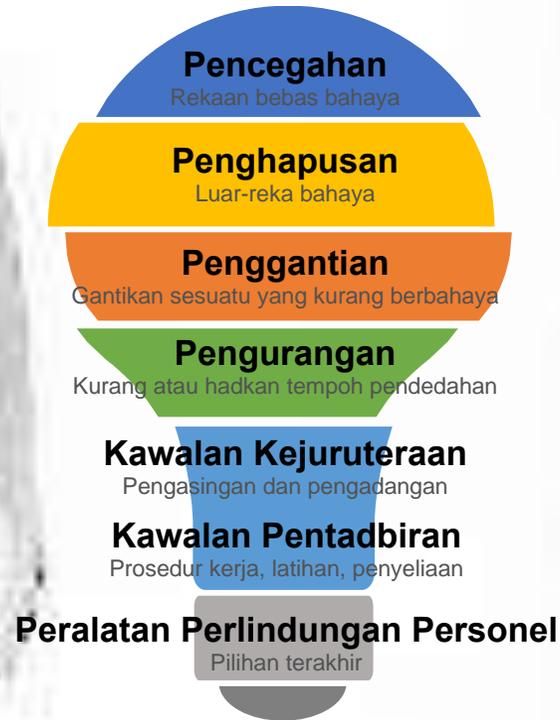
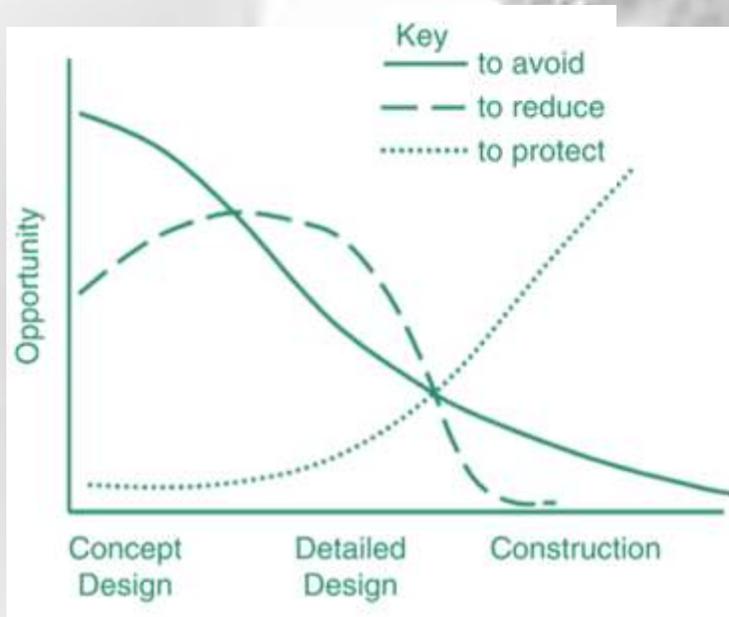
<sup>3</sup> NSW WorkCover, CHAIR Safety in Design Tool, 2001

# ABILITY TO INFLUENCE SAFETY<sup>1</sup>

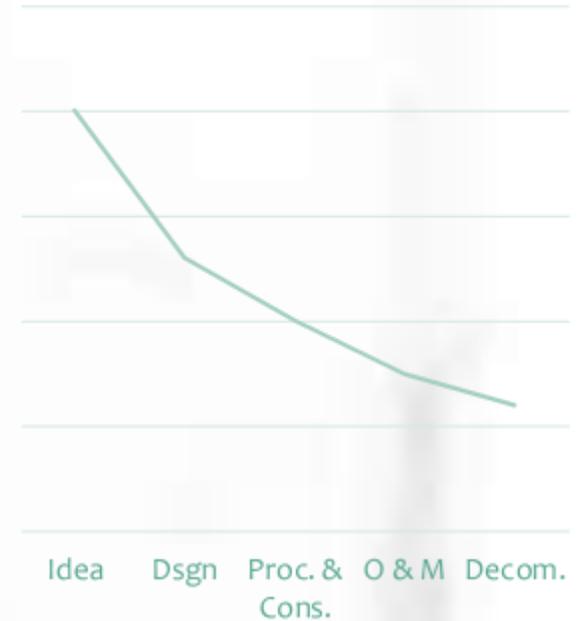


# THE APPLICATION OF OSH IN DESIGN HIERARCHY

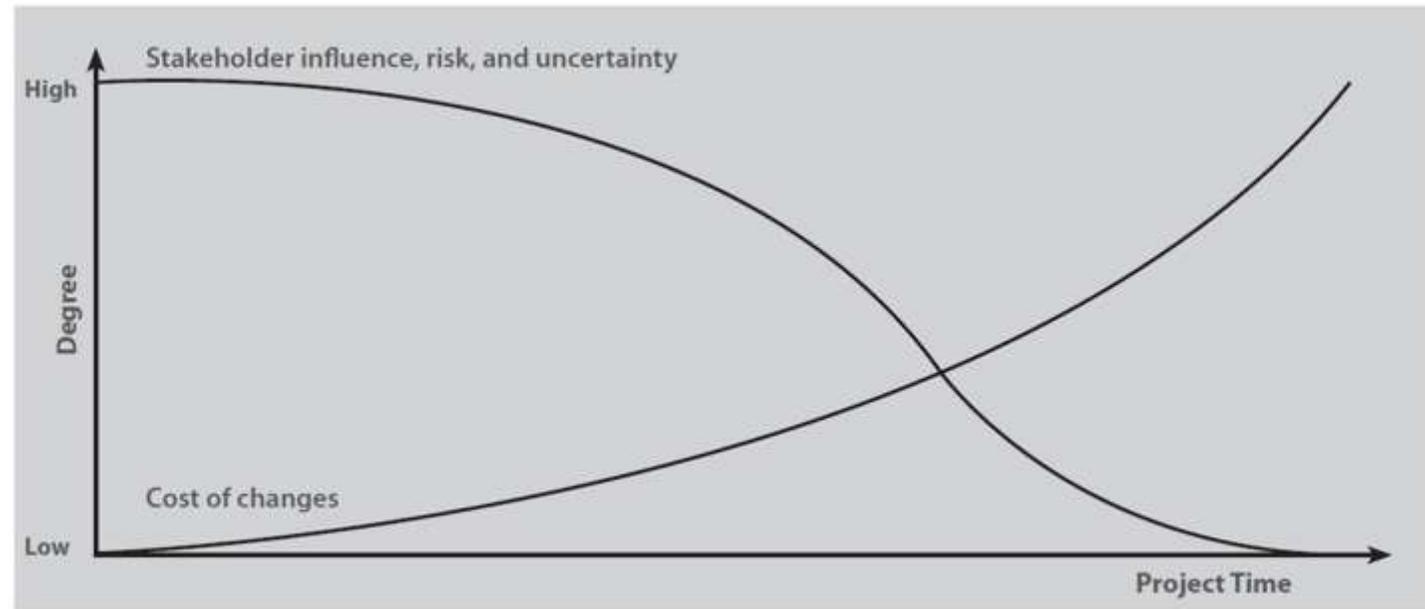
## Ability to manage risk at different project stages



## Ability to effectively use higher order controls



It is just a good business sense to spend more time, resources and effort at the beginning of the project phase



SOURCE: PMBOK® Guide

1. The influence of stakeholders, the risks, and the uncertainties are larger at the project start and tend to decrease during the project execution;
2. The costs of changes are minor at the project start and tend to increase during the project execution.

# CONCLUSION

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There are many examples to be found where there is a clear link between design decisions taken for economic or project success reasons that have also delivered successes in health and safety.

Certainly health and safety management will add costs to any project and in some cases these costs may exceed the commercial benefits that accrue.

Nevertheless there are a great many cases where creative thought, driven by the need to deliver success, has also delivered improvements in health and safety.

HSE Report RR467 (2006)

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# CONCLUSION

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Early decisions are the ones that deliver the largest benefits in most cases.

Designers are frequently client advisers and early contributors to projects and so must have an enormous potential to deliver successful projects where the wellbeing of all has also benefited from particular decisions.

HSE Report RR467 (2006)

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# THANK YOU

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