



# **OVERVIEW ON PUBLICATION OF CONSTRUCTION INDUSTRY STANDARDS**

**(CIS related to Construction Safety & Health)**

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**CIDB Malaysia**

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# Outline of Presentation



CIS 10: 2020

Safety Health Assessment  
in Construction (SHASSIC)

CIS 22: 2019

Safe Use of  
Scaffolding in  
Construction

CIS 14: 2019

Guidelines on Construction  
Work at Night

CIS 23: 2018

Safe Use of Falsework in  
Construction

CIS 15: 2019

Guidelines on Prevention  
of Fall

CIS 25: 2018

CARA- HIRARC

CIS 16: 2019

Guidelines for Works at  
Confined Space

CIS 27: 2019

OSH Specifications and BQ for  
Construction Works

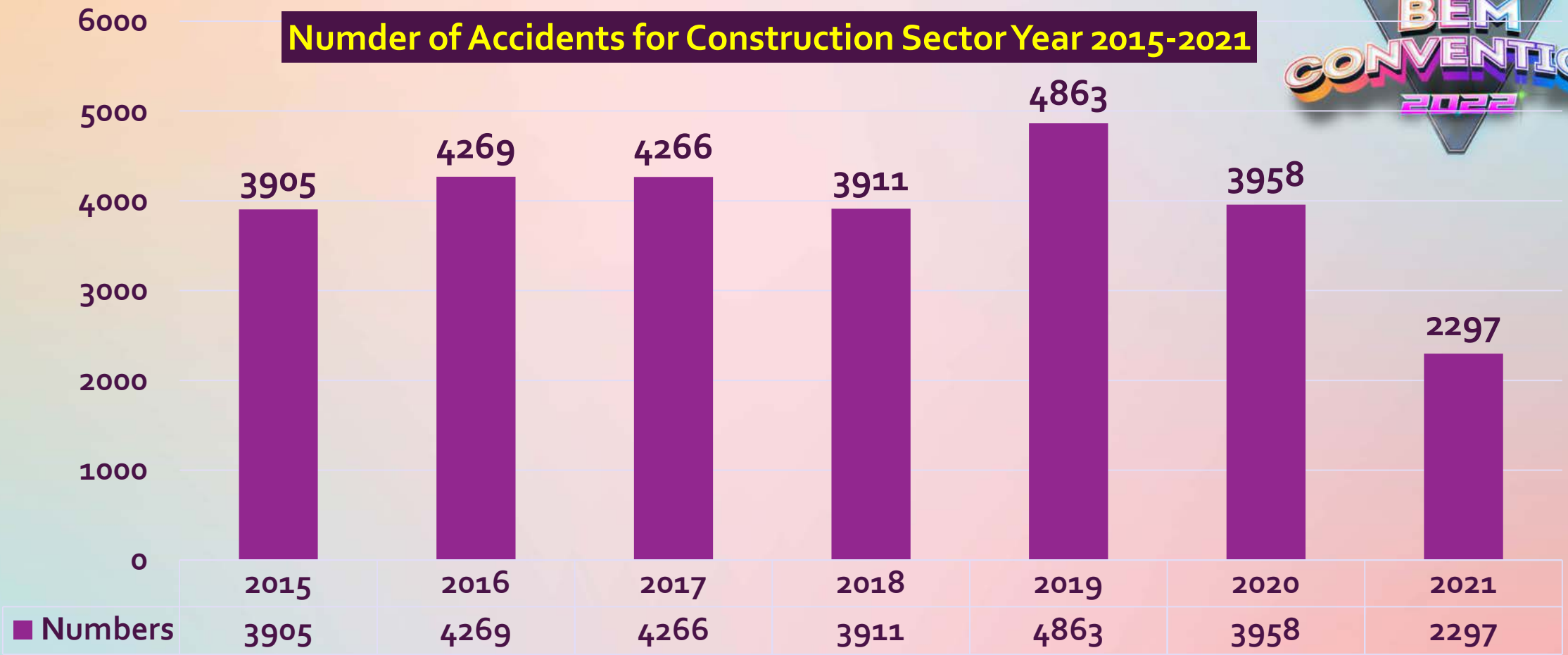
CIS 17: 2009

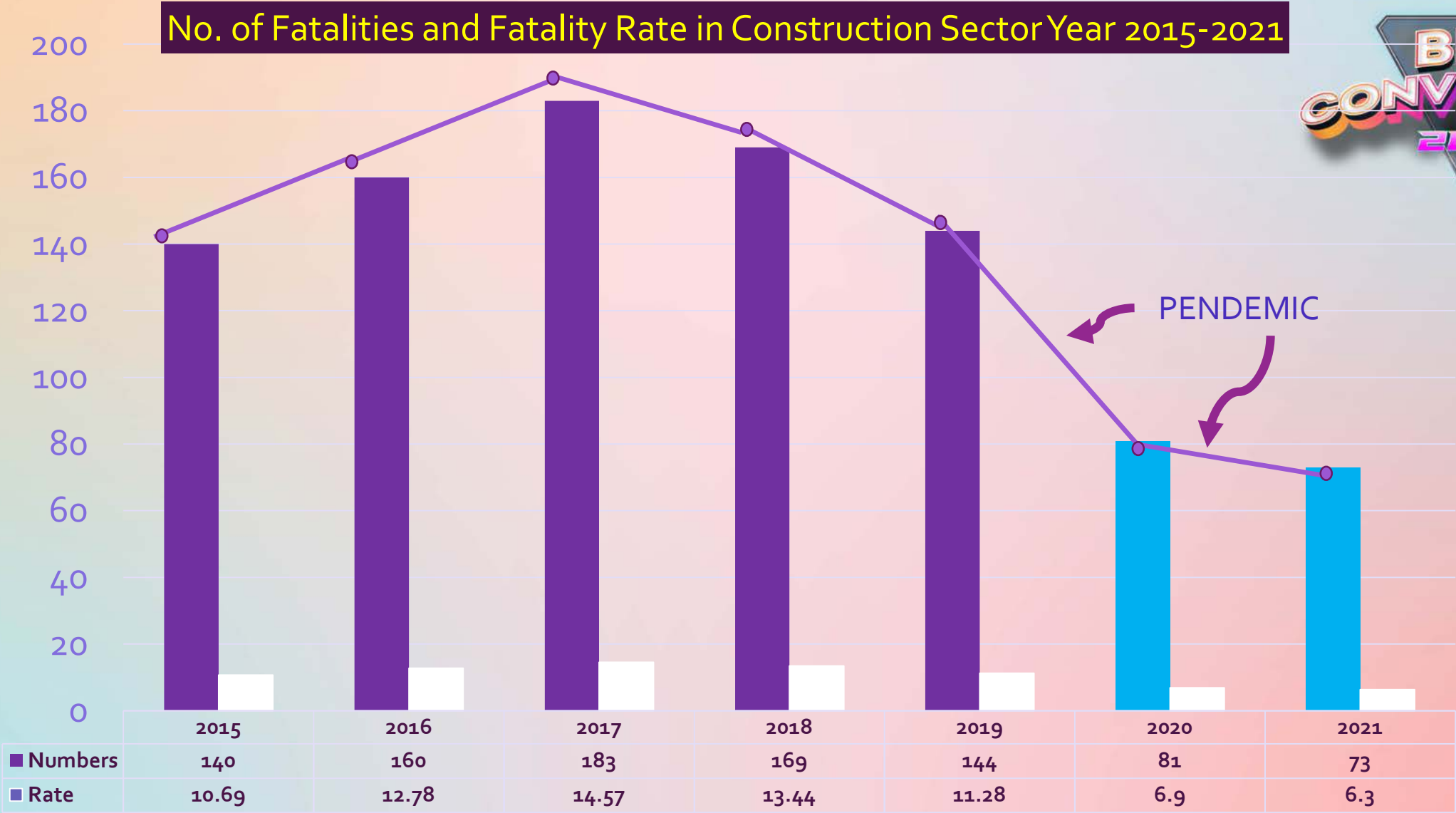
Guidelines for Working at  
Noisy & Dusty Areas

CIS 28: 2021

Public & road User Safety:  
Construction Works Adjacent To & Above  
Roadways

**The above Standards were developed by Technical Committee formed by CIDB and represented by industry stakeholders**







# CIS 10:2020 SHASSIC

First published in 2008

# WHAT IS SHASSIC ?

# Safety and Health Assessment system in Construction



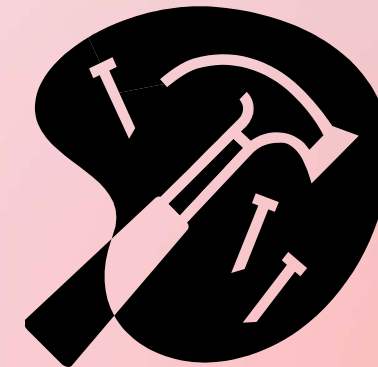


# WHEN SHASSIC can be used?

Physical  
Work  
progress

25% to 75%

- Construction at peak
- Many activities
- Workers at full Strength
- Potential accidents





# COMPONENT OF ASSESSMENT & WEIGHTAGE

20 %

**DOCUMENT CHECK**

60 %

**WORKPLACE INSPECTION**

20 %

**EMPLOYEE INTERVIEW**



# SHASSIC STAR RANKING

CIS 10 : 2020



90 to 100	★ ★ ★ ★ ★
80 to 89.9	★ ★ ★ ★
70 to 79.9	★ ★ ★
60 to 69.9	★ ★
50 to 59.9	★
49 and below	Certificate of Participation

No CCD Points from CIDB for 49 and below



# CIS 14:2019

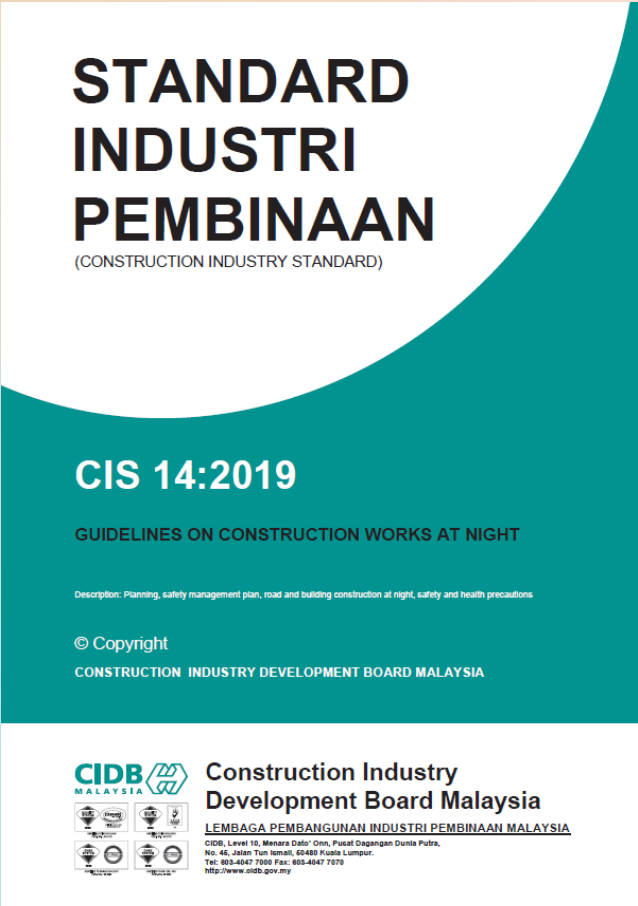
## Guidelines on Construction Works at Night

First published 2009

Page 10



# CIS 14:2019 GUIDELINES ON CONSTRUCTION WORKS AT NIGHT



- Guideline for those working at night and dark environments at construction sites
- Providing useful information and solutions to maintain a safe working environment at night
- Guidance for compliance to legal requirements and good practice
- Night time - 7pm to 7:00am
- Revision of CIS 14 : 2009
- References were made to Arahan Teknik Jalan 2C/85(2017)
- LLM publication on Expressway Maintenance System
- FMA (Act 139)
- Guideline on OSH for Lighting at workplace 2018-DOSH
- BOWEC Regulations 1986
- CIS 25 : 2018
- COP published by Hong Kong Highways Department 2006



- Traffic Management Plan
- Warning signs
- Requirement on Portable changeable message signs
- Requirement of Flashing arrow signs
- Requirements on Traffic cones and cylinders
- Requirements on Temporary barriers for delineation
- Requirement on work area protection barriers
- Requirement on warning lights
- Flaggers
- Noise limits requirement
- Lighting placement for road construction



# CIS 15 :2019 Guidelines on Prevention of Fall

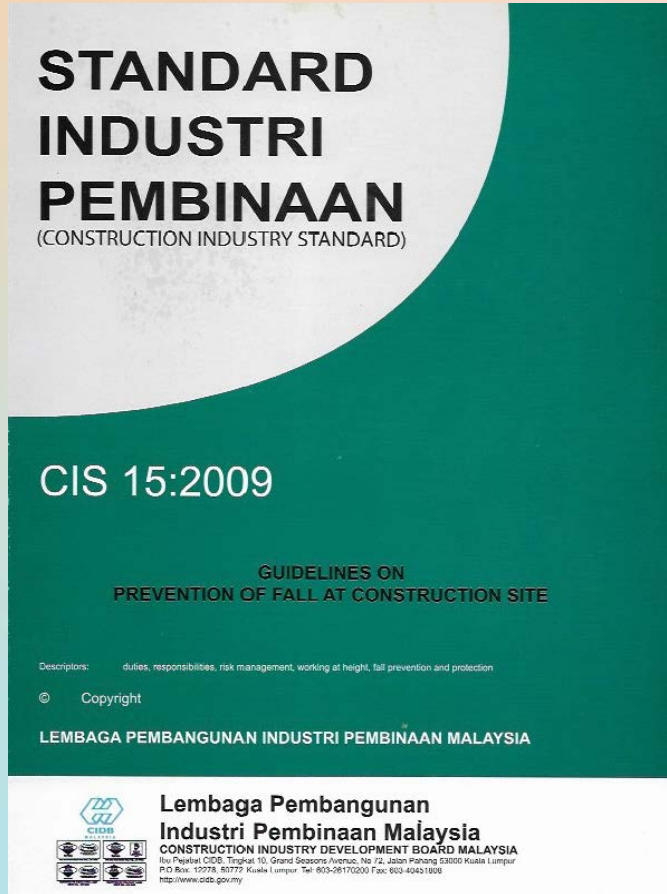
First published 2009

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# CIS 15 :2019 GUIDELINES ON PREVENTION OF FALL



- Guideline that provides guidance on adopting a risk management approach to fall prevention at construction site.
- Applicable to everyone who has the duty to prevent person falling from heights
- Duty holders - Clients, Designers, Contractors and Workers
- HIRARC (Risk Management approach )
- Revision made to CIS 15 : 2009
- References were made to Best Practice Guidelines for Working at Height in New Zealand, Australia and other countries
- CIS 25: 2018
- FMA- BOWEC Regulations
- Guidelines for the Prevention of Falls at Workplaces (2007)- DOSH
- Prevention of Falls in Housing Construction-COP -Work Safe Australia





# CIS 16 : 2019 Guidelines for Works at Confined Space

First published in 2009

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# CIS 16 : 2019 GUIDELINES FOR WORKS AT CONFINED SPACE

## STANDARD INDUSTRI PEMBINAAN

(CONSTRUCTION INDUSTRY STANDARD)

### CIS 16:2019

GUIDELINES FOR WORKS AT CONFINED SPACE  
IN CONSTRUCTION SITE

Description: Duties and responsibilities, HIRARC, entry permit system, works associated with working at confined areas

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- Applies to Main Contractor, Sub-Contractor who manage and enter a confined space at construction sites
- Not applicable to underground mining
- Example of Confine Space are
  - Storage Tank, Tankers, Silos, boilers
  - tank like compartment usually having a manhole for entry
  - tunnels, shaft, ducts and similar structures
- Revision of CIS 16:2009
- Code of Practice for Safe Working in a Confined Space -DOSH (2010)
- FMA and its Regulations
- Safe Working in confined Space, Worksafe Australia -AS 2865-1995



# CIS 22 : 2021

## Safe Use of Scaffolding in Construction

First published 2009

Page 17

# CIS 22 : 2021 SAFE USE OF SCAFFOLDING IN CONSTRUCTION

- This CIS specifies the requirements of standards for prefabricated steel frame scaffolding, tubular and modular type. To comply with MS 1462-1, MS 1462-2-1 and MS 1462-3-1 . For coupler , fitting and accessories- shall comply to MS 1462-2-3 (for tubular)
- Specifies the information that required in PC and Test Report for both new and used scaffolding.
- Perakuan Pematuhan Standard (PPS) required before it can be used at construction site. Enforced by CIDB Malaysia
- Scaffolding shall be marked with manufacturer/supplier's name, year manufactured, Standard and CIDB PSS number





# CIS 23 : 2021

## Safe Use of Falsework in Construction





# CIS 23 : 2021 SAFE USE OF FALSEWORK IN CONSTRUCTION

## STANDARD INDUSTRI PEMBINAAN

(CONSTRUCTION INDUSTRY STANDARD)

### CIS 23:2018

SAFE USE OF FALSEWORK AND  
FORMWORK IN CONSTRUCTION

Description: Product standards, certification and marking, planning, product approval, design and drawing, quality check, erection, supervision, inspection, maintenance, alterations, dismantling, storage and care of falsework and formwork.

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- Guidance for the safe use of falsework in construction
- Also highlights on the responsibility of PE for Temporary Works (PETW) and supervision of falsework and responsibility of Designated Person in connection to erection, inspection, maintenance , alteration and dismantling of the falsework
- Prefabricated steel frame scaffolding (A-Frame) is prohibited to be used as falsework. However, it can be used for working access and platform purposes or to hold perimeter safety net. This statement cited in both MS 1462-1 and CIS 23.
- Requirement for ISQC and SSQC. Both sampling to be done by PETW at construction site
- ISQC is mandatory if PPS haven't issued otherwise not necessary



**16<sup>th</sup> March 2022 – CIDB wrote to BEM ( PE not to use prefabricated Steel  
Frame (A-frame ) for falsework design )**





- “CIDB memandang serius mengenai penyalahgunaan *prefabricated steel frame* bagi MS 1462-1 (or better known as A-Frame) yang digunakan sebagai *falsework* ”
- CIDB will enforce the above requirement from March 2022.
- CIDB requested BEM to inform professional engineers with practicing certificate or better known as PETW on the above requirement.

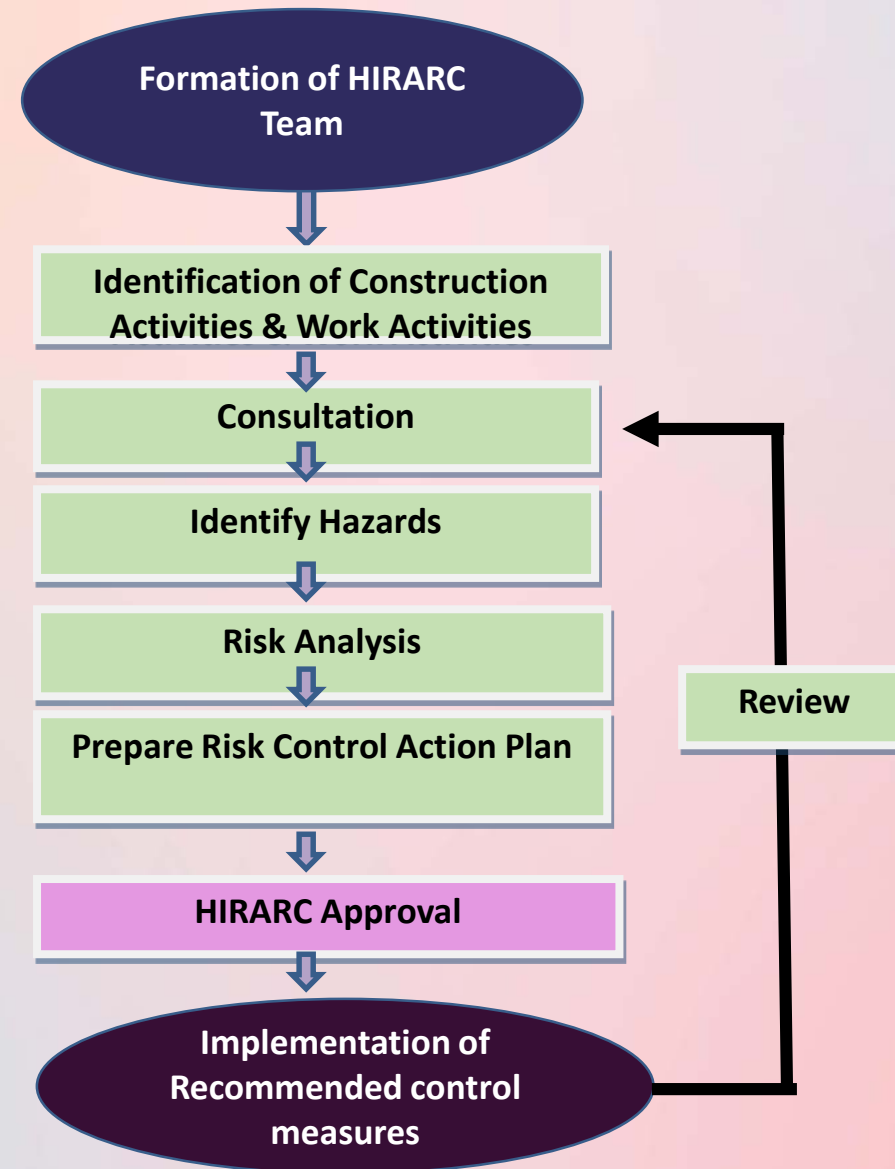


# CIS 25 : 2018

## Construction Activities Risk Assessment

### Hazard Identification, Risk Analysis AND Risk Control (HIRARC)

# HIRARC FLOW CHART



# CATEGORIES OF HAZARDS

- Physical – such as noise, fire, heat, radiation
- Mechanical – such as moving parts, rotation parts etc
- Electrical – such as current, static charge, magnetic fields etc
- Chemical – such as flammable, toxics, corrosives, reactive materials
- **Biological** – virus, bacteria, vector borne disease etc
- Psychosocial - stress, fatigue



# Common Hazards in Construction

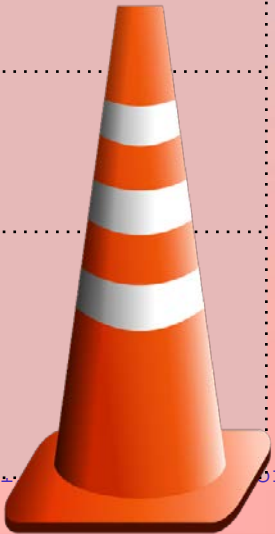
- Exposed to fall while working at height
- Expose to sharp protruding object
- Expose to excessive sun heat (extreme heat)
- Exposed to hit by moving machinery
- Expose to stung by bees or hornet
- Expose to hit by fallen trees
- Exposed to excessive noise
- Failure of hoisting tackles during hoisting
- Hit by moving load
- Poor access and egress
- Expose to inhalation of mineral dust.
- Poor shoring
- Failure of access ramps
- Unsecured load lifted by MOBILE CRANE
- Unsafe forklift access and egress
- Poor housekeeping
- Expose to moving and dangerous part of machinery
- Expose to sharp object





# Guide to likelihood rating

Level	Likelihood	Description
1	Rare	Not expected to occur but still possible
2	Remote	Not likely to occur under normal circumstances
3	Occasional	Possible or known to occur
4	Frequent	Common occurrence
5	Almost Certain	Continual or repeating experience





# Guide to severity rating

Level	Severity	Description
5	Catastrophic	Death, fatal diseases or multiple major injuries.
4	Major	Serious injuries or life-threatening occupational diseases (includes amputations, major fractures, multiple injuries, occupational cancers, acute poisoning, disabilities and deafness).
3	Moderate	Injury or ill-health requiring medical treatment (includes lacerations, burns, sprains, minor fractures, dermatitis and work-related upper limb disorders).
2	Minor	Injury or ill-health requiring first-aid only (includes minor cuts and bruises, irritation, ill-health with temporary discomfort).
1	Negligible	Negligible injury.

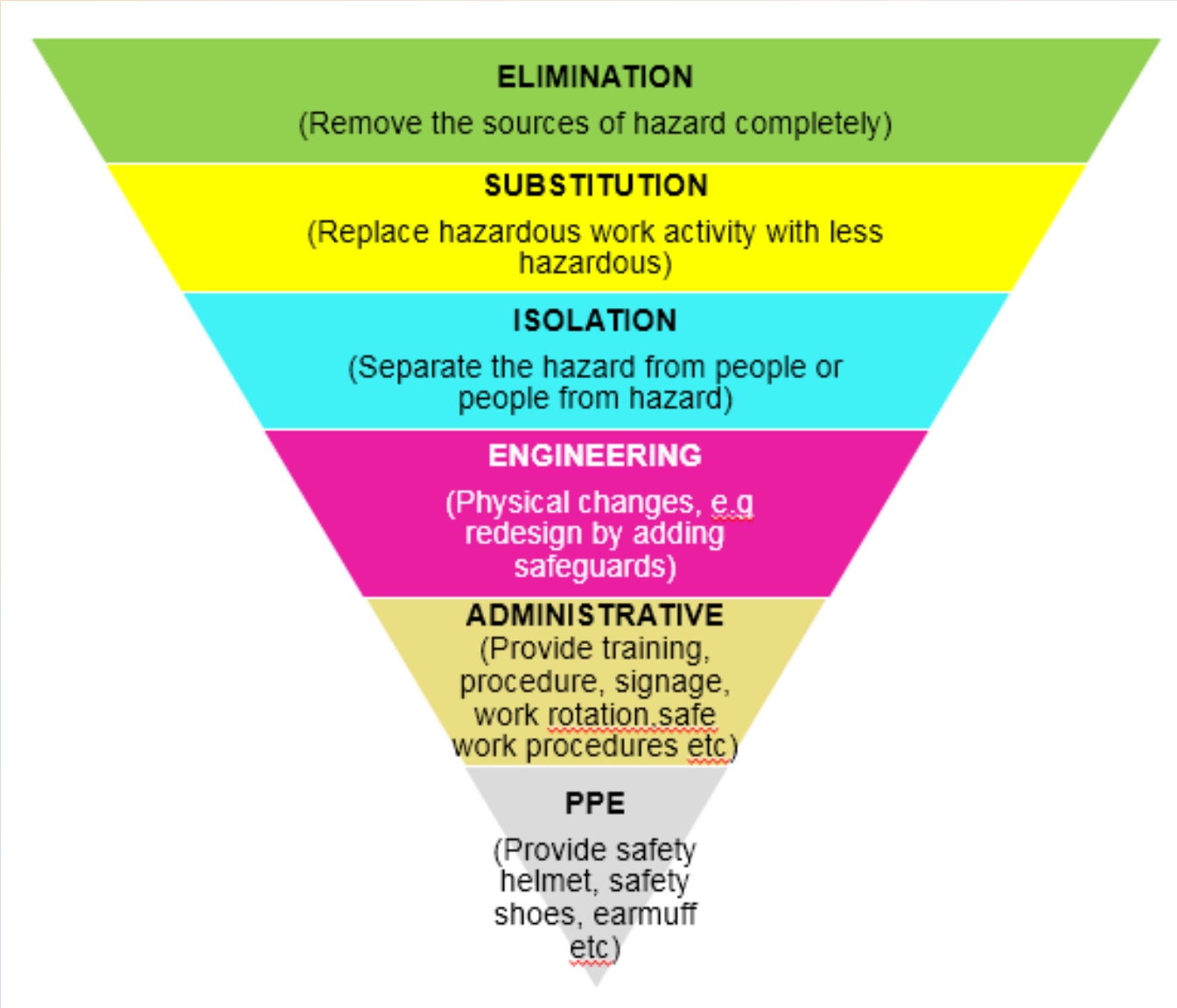




# 5x5 Risk Matrix

Likelihood Severity	Rare (1)	Remote (2)	Occasional (3)	Frequent (4)	Almost Certain (5)
Catastrophic (5)	5 (Med)	10 (Med)	15 (High)	20 (High)	25 (High)
Major (4)	4 (Med)	8 (Med)	12 (Med)	16 (High)	20 (High)
Moderate (3)	3 (Low)	6 (Med)	9 (Med)	12 (Med)	15 (High)
Minor (2)	2 (Low)	4 (Med)	6 (Med)	8 (Med)	10 (Med)
Negligible (1)	1 (Low)	2 (Low)	3 (Low)	4 (Med)	5 (Med)

# Hierarchy of Control



More Effective



Less Effective





# CIS 25 : 2018 CARA - HAZARD IDENTIFICATION, RISK ANALYSIS AND RISK CONTROL (HIRARC)

## STANDARD INDUSTRI PEMBINAAN

(CONSTRUCTION INDUSTRY STANDARD)

### CIS 25:2018

(CONSTRUCTION ACTIVITIES RISK ASSESSMENT [CARA]  
Hazard Identification, Risk Analysis and Risk Control [HIRARC])

Description: Construction activity risk assessment, hazard identification, risk assessment and risk control

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CIS ON CONSTRUCTION ACTIVITIES RISK ASSESSMENT (CARA – HIRARC) TABLE OF COMMON CONSTRUCTION WORK ACTIVITIES									
1. Hazard Identification				2. Risk Analysis				3. Risk Control	
Item	Work Activity	Hazard	Consequences/ Effect may cause	Existing Risk Control <small>*Presuming there is no control measure</small>	Likelihood	Severity	Risk Rating	Risk Classification	Recommended Control Measures
A. SITE PREPARATION WORK									
1	a. Survey Work	Expose to high speed moving vehicle.	Struck by high speed vehicle and fatal.	No existing risk control measure	2	5	10	Yellow - Medium	a. <b>ENGINEERING CONTROL (EC)</b> i. To install traffic cone and safety warning signage to indicate man at work. b. <b>ADMINISTRATIVE CONTROL (AC)</b> i. To provide flagman to control traffic flow. ii. Conduct Tool Box Talk on life traffic hazard prior to survey work. c. <b>PPE CONTROL (PC)</b> i. Wearing of safety helmet, safety shoes/boots and high visibility safety vest should be made mandatory.
		Expose to sharp protruding object	Potential to sustain legs injury.	No existing risk control measure	4	3	12	YELLOW - Medium	a. <b>ENGINEERING CONTROL (EC)</b> i. There is no EC possible. b. <b>ADMINISTRATIVE CONTROL (AC)</b> i. To conduct visual site inspection prior to survey work. ii. Conduct Tool Box Talk on potential hazards during survey work. c. <b>PPE CONTROL (PC)</b> i. Wearing of safety helmet, safety vest and safety shoes/boots should be made mandatory.





# CIS 27 : 2019 OSH Specifications and BQ for Construction Works





# Highlights on CIS 27: 2019

- Guidance for QS or Engineers to prepare Bill of Quantities with specification
- Addition or omission may be effected to suit the project needs
- Recommended to be used as part of tender document
- Can be applied to both building and engineering/infrastructure projects
- Recommended the QS or engineer fix reasonable prices for each item to avoid contractor putting his price (to avoid under pricing for safety items to make the overall tender price of the project competitive –no compromise for safety items)



# CIS 27 : 2019 OSH SPECIFICATIONS AND BQ FOR CONSTRUCTION WORKS

## STANDARD INDUSTRI PEMBINAAN

(CONSTRUCTION INDUSTRY STANDARD)

### CIS 27 : 2019

**OCCUPATIONAL SAFETY AND HEALTH –  
SPECIFICATION AND BILL OF QUANTITIES (BQ) FOR  
CONSTRUCTION WORKS**

Descriptor : Specification, bill of quantities, safety and health plan, OSH personnel, HIRARC, performance report, special working condition and traffic management.

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ANNEX A					
OCCUPATIONAL SAFETY AND HEALTH BILL OF QUANTITY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (RM)	AMOUNT (RM)
<b>OCCUPATIONAL SAFETY &amp; HEALTH</b>					
A	Preparation of 5 copies site safety and health plan (S & H Plan) as per item 2.2 of the specification for OSH Construction Works in CIS 27 : 2019	Nos	5		
B	Employment of safety personnel as per item 2.3 of the specification for OSH Construction Works in CIS 27 : 2019				
	i) Safety and Health Officer	Man/month			
	ii) Site Safety Supervisor	Man/month			
	iii) Contractor Safety Supervisor	Man/month			
	iv) Designated Person	Man/month			
C	Establishment of a Safety and Health Committee at place work as per item 2.4 of the specification for OSH Construction Works in CIS 27 : 2019	Month			
D	Provision of safety and health training as per item 2.5 of the specification for OSH Construction Works in CIS 27 : 2019	Nos			
E	Preparation of Hazard Identification Risk Assessment and Risk Control (HIRARC) for the activities carried out at site as per item 2.6 of the specification for OSH Construction Works in CIS 27 : 2019	Item			
F	Preparation of 5 copies Safety & Health Performance Report as per item 2.7 of the specification for OSH Construction Works in CIS 27 : 2019	Monthly	5		
G	Provision for safety and protective equipment as per item 2.8 of the specification for OSH Construction Works in CIS 27 : 2019 and as approved by S.O				
	• Safety footwear	Pairs			
	• Safety helmets	Pcs			
	• Full Body Harness c/w Hook and Lanyard for workmen who work at heights more than 2m above ground level	Pcs			
	• Safety / life lines for workmen who work at heights more than 2m above ground level	Meter			
	• Protective gloves	Pairs			
	• Safety goggles	Pairs			
TO COLLECTION (RM)					

ITEM	DESCRIPTION	UNIT	QTY	RATE (RM)	AMOUNT (RM)
	• Safety jackets of reflective type	Pcs			
	• Ear plugs and muffs	Pairs			
	• Gas masks	Set			
	• Dust masks	Pcs			
	• Head lamp	Pcs			
	• Life jacket	Pcs			
	• Laser protection	Pcs			
	• Protection against radiant energy	Pcs			
	• (any additional and delete where not applicable...etc..)				
H	Provision for health and welfare as per item 2.9 of the specification for OSH Construction Works in CIS 27 : 2019				
	• Workers Accommodation	Item			
	• First Aid Facilities	Item			
	• Rest Area	Item			
	• Toilet	Item			
	• other health and welfare facilities to be specified				
	.....				
	.....				
	.....				
I	Allow for compliance to safe working area as per item 2.10 of the specification for OSH Construction Works in CIS 27 : 2019				
	i) Supply erection, maintenance and removal on completion of the works, protective and security hoarding as stipulated in Specification For Occupational Safety And Health For Building Construction Works.	Item			
	ii) Supply, erection and dismantling of scaffolding, working platform with safety nettings by competent person(s) under the direct supervision of a designated person as stipulated in Specification For Occupational Safety And Health For Building Construction Works.	Item			
	iii) Submission of scaffolding design and working platform for works above 15m height certified by a Professional Engineer for the approval of the S.O. / P.D. as stipulated in Specification For Occupational Safety And Health For Building Construction Works.	Item			
	iv) Supply, erection, maintains and dismantling of catch platform during demolition of structure or other related exterior works at more than 12m height. Such platform shall be designed by a Professional Engineer and certified for safety prior to erection as stipulated in Specification For Occupational Safety And Health For Building Construction Works.	Item			
TO COLLECTION (RM)					



# CIS 28 : 2021

## Public & Road User Safety

### - Construction Works Adjacent to and Above Roadways



## CIS 28 : 2021 PUBLIC AND ROAD USER SAFETY : CONSTRUCTION WORKS ADJACENT TO AND ABOVE ROADWAYS

- Guidelines for construction works adjacent to or above roadways
- Roles and Responsibility of contractor, client, project consultant and workers
- Traffic Control on Existing Roadways
- Preparation of HIRARC
- Covers on hazards that could cause accident to road users
- Safety precautions to prevent Injuries to road users
- Situations that could trigger falling of objects
- Example of falling object warning signage
- Checklist - Before Work Commencement , During work Execution and Upon work completion
- Requirement of Permit to work





## Proposed Regulations on Construction Safety based on Act 520

5 CIS(s) were recommended to be made as mandatory standards:-

- CIS 10 - SHASSIC
- CIS 14 - Guidelines on Construction Works at Night
- CIS 15 - Guidelines on Prevention of Fall
- CIS 27 - oSH Specifications and BQ for Construction Works
- CIS 29 - Public & Road User Safety : Construction Works Adjacent to and Above Roadways





# THANK YOU



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