



# 建造業安全周2019 – 研討會

許海航工程師  
總助理秘書長 (工務) 5

2019年5月20日



發展局  
Development Bureau

Zer“0”意外  
ACCIDENT

地盤零意外 關懷建未來  
Zero Accident, we Build, we Care

上一個世紀...





大魔術師？

輕功水上漂？

# 2018...

**DANGER**  
**廿樓擒外牆抹窗**  
**安全帶裝假狗**



# 19 May 2019 News

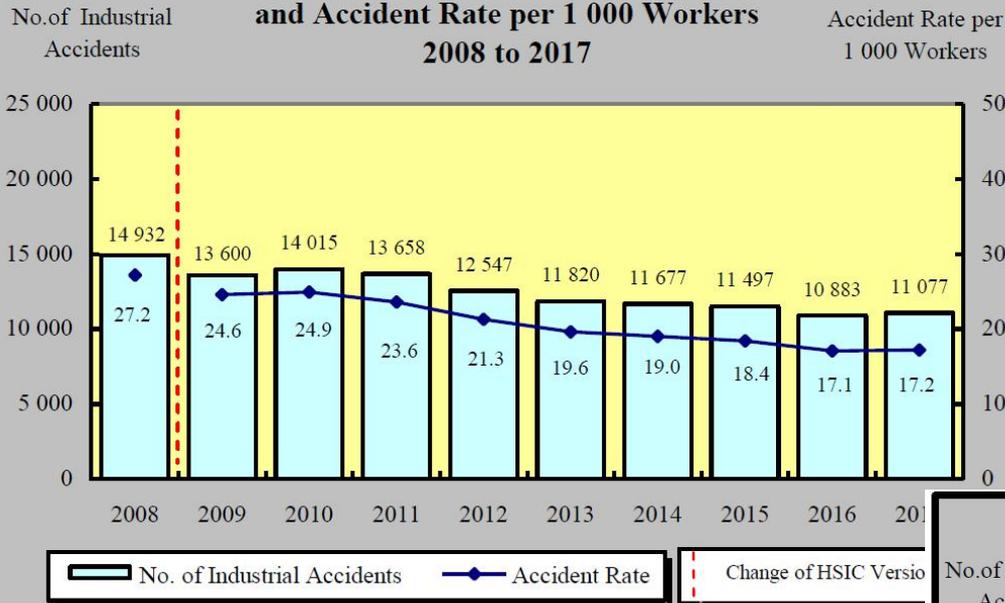


# Fatal incidents in late 2018/early 2019

| 日期         | 事件                                     |
|------------|--|
| 6/12/2018  | 沙頭角地盤貨車溜後 1工人慘遭撞斃                      |
| 13/12/2018 | 深水埗棚架工人高處墮下 送院搶救不治                     |
| 27/12/2018 | 首日開工遇意外 油美苑搭棚工人墮樓亡                     |
| 9/1/2019   | 鑽石山悅庭軒男裝修工 26樓棚架墮下送院亡                  |
| 12/1/2019  | 工人昂船洲軍營鋪水泥 失足10米高墮斃                    |
| 26/1/2019  | 長沙灣伸縮篷支架擊中 中年技工人仰梯翻墮樓亡                 |
| 11/2/2019  | <b>【罕見意外】</b> 大埔工程車升降台疑撞架空電纜 街燈清潔工觸電慘死 |
| 22/2/2019  | 太古坊貨車塌兩噸重玻璃 倉務員助「睇位」慘遭壓斃               |
| 25/2/2019  | 新田車場輪胎充氣時爆開 工人遭氣流擊中不治                  |
| 2/3/2019   | 觀塘地盤墮木方擊斃泥水工 勞工處發「暫時停工通知書」             |
| 5/3/2019   | 元朗及荃灣發生工業意外 3工人平台墮下受傷 (1個工人期後不治)       |
| 11/3/2019  | <b>【奪命工傷】</b> 荃灣冷氣機雪種泵爆炸 29歲技工搶救一日不治   |
| 3/4/2019   | <b>【致命意外】</b> 屯門內河碼頭 女工遭貨櫃起卸機輾斃        |
| 16/4/2019  | <b>【科學園工業意外】</b> 昨遭木板壓中 泰籍工人今不治        |
| 18/4/2019  | 青衣運沙船工人墮船艙 重傷不治                        |

# Accident Rates

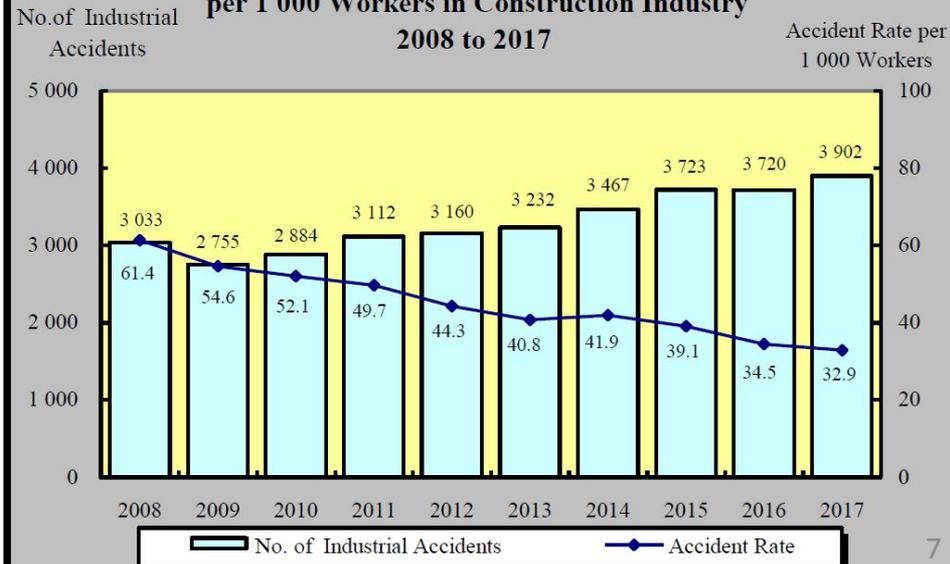
**Number of Industrial Accidents and Accident Rate per 1 000 Workers 2008 to 2017**



**Overall Industrial Accidents @17.2/1000 workers**

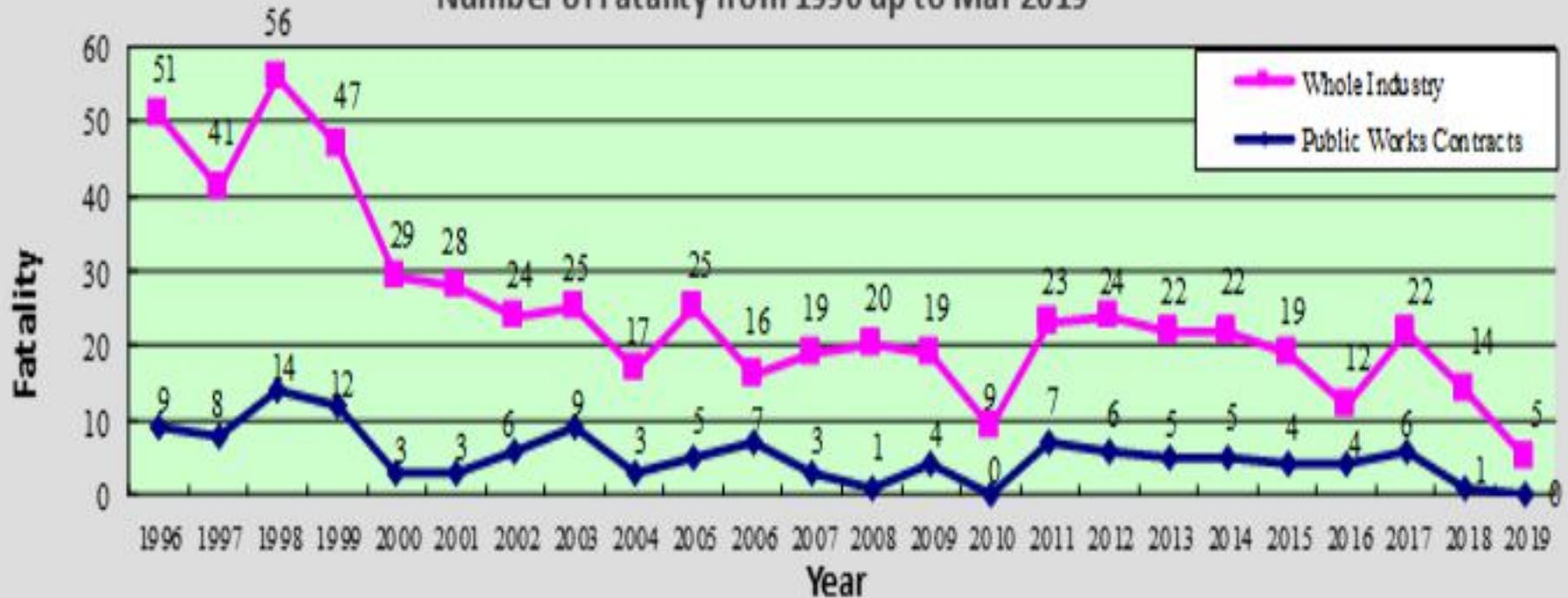
**Construction Accidents @32.9/1000 workers**

**Number of Industrial Accidents and Accident Rate per 1 000 Workers in Construction Industry 2008 to 2017**



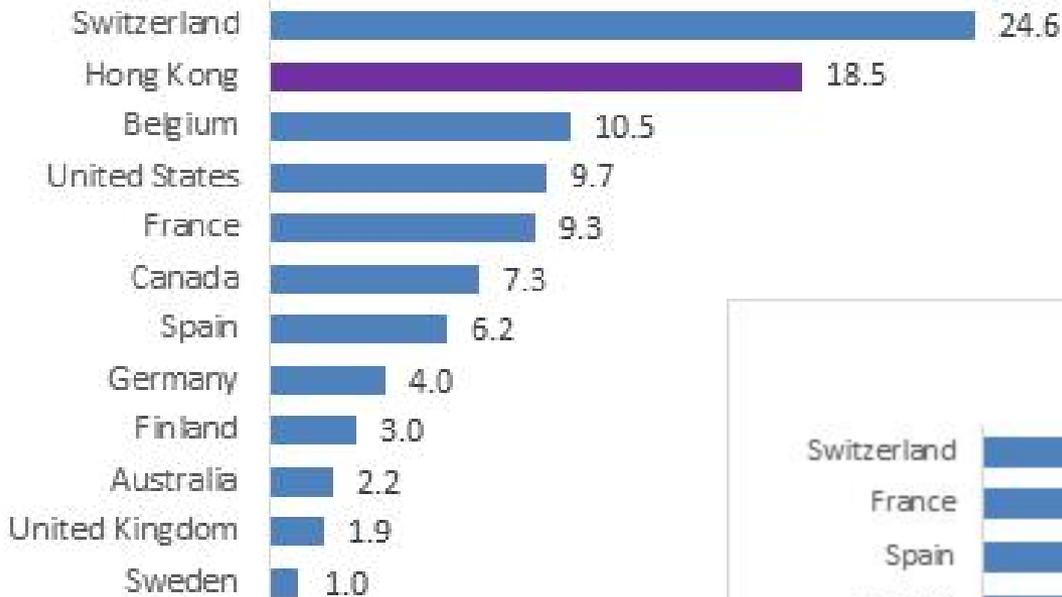
# No. of fatalities

Number of Fatality from 1996 up to Mar 2019



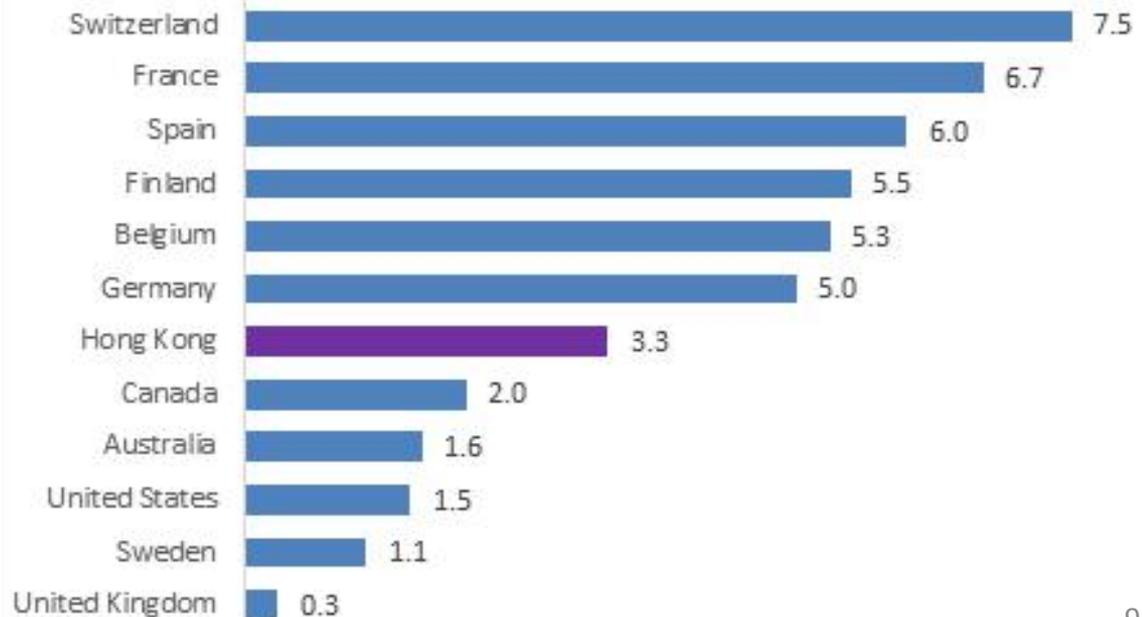
# Accident and Fatality Rates

Fatality Rate per 100 000 workers



In most EU countries, non-fatal accident at work is an accident causing worker(s) one or more days of absence from work.

Accident Rate per 100 workers



In HK, a reportable accident is an accident causing worker(s) incapacity for more than three days.

# Collaboration with Stakeholders

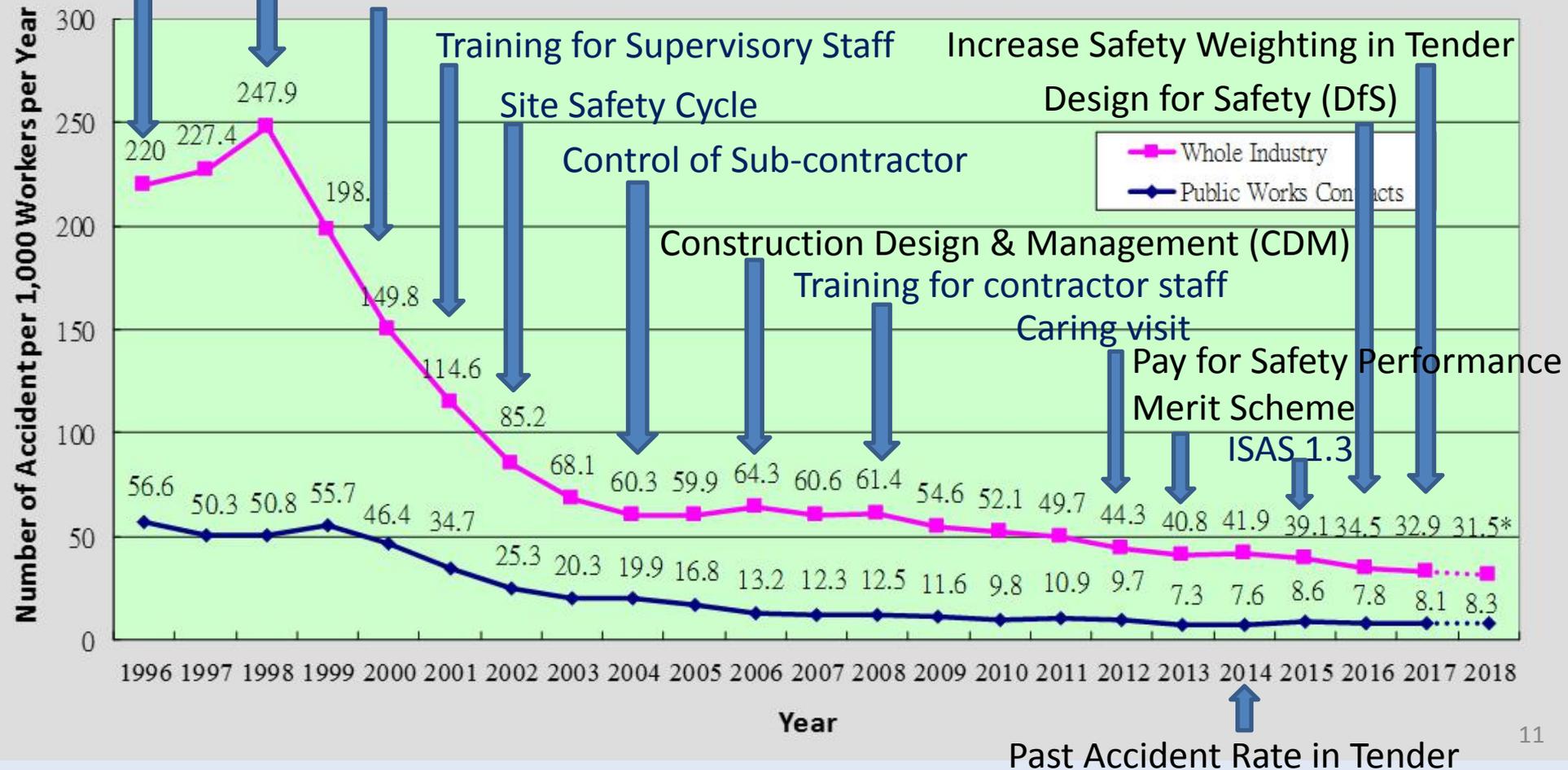


# Actions taken by Government

Pay for Safety

Safety Performance in Tender Evaluation

Accident Frequency Rates from 1996 up to August 2018



# Summary of Major Actions taken

| Government  | Contractors                        | Consultants                           | Workers                        |
|---|------------------------------------|---------------------------------------|--------------------------------|
| Considerate Construction Safety Award Scheme (1995) |                                    |                                       |                                |
| Pay for Safety (1995)                               | Site Safety Cycle (2002)           |                                       | Caring and safety alert (2012) |
| Caring Visit (2012)                                 | Tendering (1998, 2002, 2014, 2017) | Design for Safety (2006, 2016)        | Builder's lift (2014)          |
| Construction Safety Week (2012)                     |                                    |                                       |                                |
| Safety audit (2013, 2018)                           | Score Card (2000, 2019)            | Training & Qualification (2001, 2017) | Hot weather (2018)             |
| Pay for Safety Performance Merit Scheme (2013)      | Panel of Enquiry (2009, 2017)      |                                       | BAP (2018)                     |

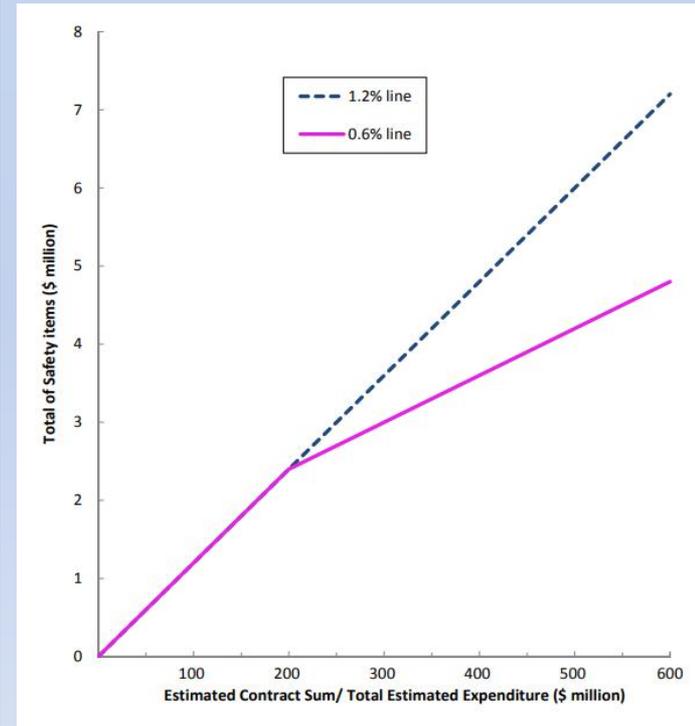
# Pay for Safety

## Pay for Safety Scheme (1.2% of contract sum max.)

### Appendix I(a) - Sample Bill of Quantities for works contracts included in PFSS

Based on \$ 200M contract value or below over a construction period of 2 years

| Item No.                  | Description  | Quantity | Unit   | Suggested Amount (% of contract value <sup>#</sup> ) |
|---------------------------|--|----------|--------|--|
| A                         | Provide Safety Officer   | 48       | nr-mth | 0.216%   |
| B                         | Attend Site Safety Management Committee  | 24       | mth    | 0.050%   |
| C                         | Attend Site Safety Committee   | 24       | mth    | 0.050%   |
| D                         | Arrange and attend weekly safety walk  | 104      | nr     | 0.150%   |
| E                         | Provide safety training in the form of safety training for specified trade workers                           |          |        |  |
|                           | (i) One day course   | 33       | nr     | 0.011%*  |
|                           | (ii) Half day revalidation course  | 40       | nr     | 0.007%*  |
| F                         | Provide safety training in the form of site specific induction training                                      | 30       | mth    | 0.051%   |
| G                         | Provide safety training in the form of toolbox talks   | 30       | mth    | 0.102%   |
| H                         | <u>Provisional Sum</u><br>Participate in safety promotional campaign as instructed by the Architect/Engineer | -        | sum    | 0.030%   |
| I                         | Arrange and hold Pre-work Activities of Site Safety Cycle  | 30       | mth    | 0.480%   |
| J                         | Prevention of heat stroke at work in a hot environment   | 10       | mth    | 0.050%   |
| Total to Collection Sheet |  |          |        | 1.2%   |



# Pay for Safety Performance Merit Scheme

## Pay for Safety Performance Merit Scheme (1.7% of contract sum)

### MEMO

|   |                              |
|---|------------------------------|
| <i>From</i> Secretary for Development                                   | <i>To</i> Distribution       |
| <i>Ref</i> (02LSW-01-1) in DEVB(W) 516/70/03                            | ( <i>Attn</i> : _____ )      |
| <i>Tel. No.</i> 3509 8277   | <i>Your Ref.</i> _____       |
| <i>Fax No.</i> 2524 9308  | <i>dated</i> _____           |
| <i>Email</i> <a href="mailto:clwong@devb.gov.hk">clwong@devb.gov.hk</a> | <i>Fax No.</i> _____         |
| <i>Date</i> 22 November 2013  | <i>Total Pages</i> 3 + Encl. |

### Pay for Safety Performance Merit Scheme

This memo promulgates the Pay for Safety Performance Merit System (PFSPMS) in public works contracts as an extension to the existing Pay for Safety and

香港特別行政區政府

The Government of the Hong Kong Special Administrative Region

政府總部  
環境運輸及工務局  
香港花園道美利大廈



Environment, Transport  
and Works Bureau  
Government Secretariat  
Murray Building, Garden Road,  
Hong Kong

Ref. : ETWB(W) 517/91/01  
Group : 2, 5, 7, 8, 12

29 December 2005

**Environment, Transport and Works Bureau**  
**Technical Circular (Works) No. 19/2005**

**Environmental Management on Construction Sites**

### Annex E – Part II (A)

#### Sample Schedule of Performance-tied Payment Items of the PFSPMS

(Based on \$200M estimated contract value, excluding the Contingency Sum and any sum allowed for fluctuations, for a contract period of 24 months)

#### Schedule of Performance-tied Payment Items of the PFSPMS

| (A) Performance-tied payment items |   |                  |                         |           |             |   |
|------------------------------------|---|------------------|-------------------------|-----------|-------------|---|
| Item no.                           | Description of Payment items on performance indicators  | Quantity         | Unit                    | Rate (\$) | Amount (\$) | Assigned % on capped amounts <sup>(6)</sup> |
| 1.                                 | No reportable accidents in a month  | 34 <sup>^</sup>  | month                   | 12,000    | 408,000*    | [12%]                                       |
| 2.                                 | No notice of safety or environmental prosecution received in a month  | 34 <sup>^</sup>  | month                   | 12,000    | 408,000*    | [12%]                                       |
| 3.                                 | Safety training (Silver Card) for specified trade workers compliance per month<br>Payment to be made if: no. of Silver Card compliance/ total no. of workers requiring Silver Card > 90% on a date specified by the Architect/Engineer/Supervising Officer during the month   | 34 <sup>^</sup>  | month                   | 6,000     | 204,000*    | [6%]  |
| 4.                                 | Half-yearly review of safety performance – notices from Labour Department (LD)<br><br>Payment to be made if there is:-<br>- No Part I Inspection Notice <sup>(note 2)</sup> from LD;<br>- Not more than 5 Part II Inspection Notice <sup>(note 2)</sup> from LD; and<br>- No Improvement Notice or Suspension Notice from LD in half year | 5.6 <sup>^</sup> | Half-year               | 73,000    | 408,800*    | [12%]                                       |
| 5.                                 | 12-month rolling accident frequency rate for reportable accidents below 0.25 per 100,000 man-hours worked   | 23 <sup>^^</sup> | 12-month rolling period | 27,000    | 621,000*    | [18%]                                       |
| 6.                                 | Yearly review of safety performance - no fatal accident in a year   | 2.8 <sup>^</sup> | year                    | 220,00    | 616,000*    | [18%]                                       |
| 7.                                 | Achievement in safety campaigns organized by Development Bureau<br><br>(i) Considerate Contractors Site Award (CCSA <sup>(6)</sup> )<br><br>(a) Obtaining gold award  | 2                | nr                      | 120,000   | 240,000*    | [7% or \$0.36M whichever is the lower]      |

# Application of Innovative Technology

- **Technology for construction**

- Steel prefabrication yards
- MiC



- **Safety devices**

- Remote sensing (e.g. RFID)
- CCTV
- Smart IOT helmet



- To provide incentives in **Safety Score Card**

# Promotion of Innovative Devices

Smart card control system for forklift truck

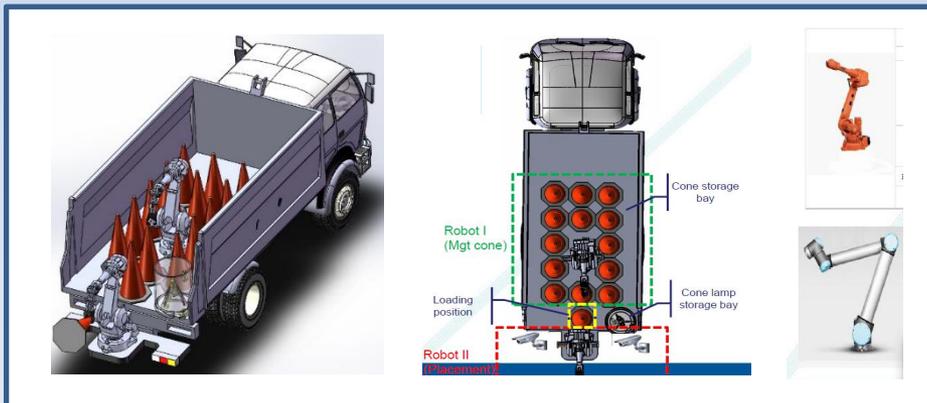


Safety Belt System



- Three different application methods to ensure the worker's safety belt is properly installed

audio visual alarm system for worker in danger zone of mobile plant



# Panel of Enquiry

香港特別行政區政府

The Government of the Hong Kong Special Administrative Region

政府總部

發展局

工務科

香港花園道美利大廈



Works Branch  
Development Bureau  
Government Secretariat  
Murray Building, Garden Road,  
Hong Kong

Ref. : DEVB(W) 516/14/02

Group: 2, 8, 12

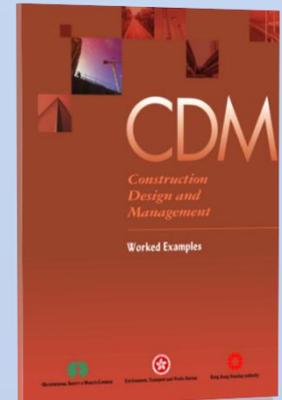
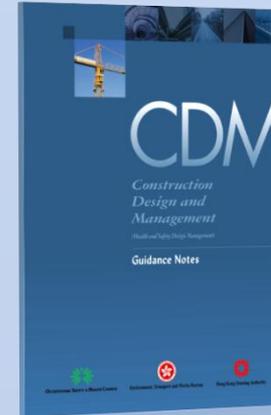
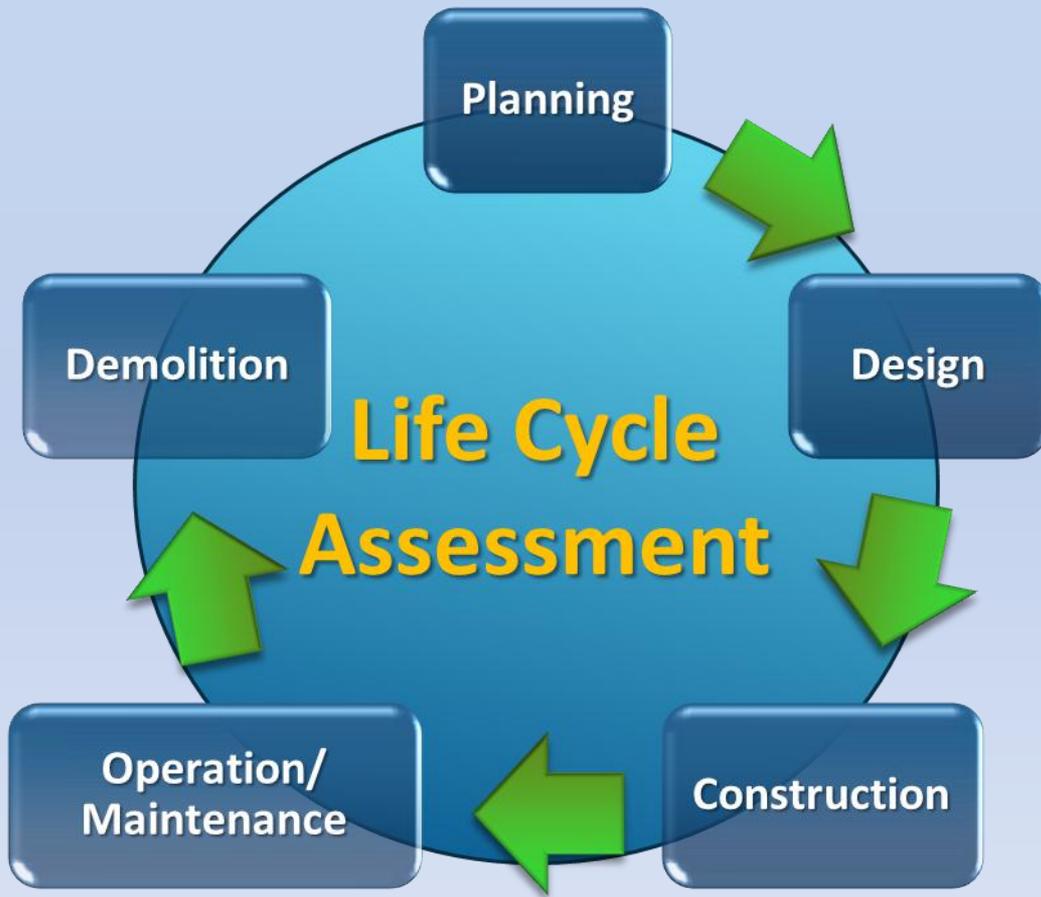
13 March 2009

Development Bureau

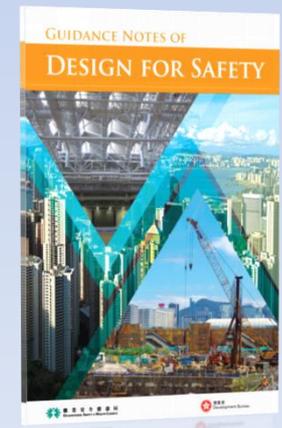
Technical Circular (Works) No. 3/2009

Regulating Action against Contractors for Occurrence of a Serious Incident or  
Conviction for Site Safety or Environmental Offences

# Design for Safety



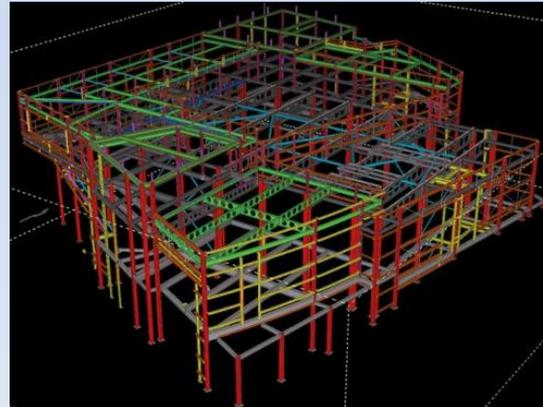
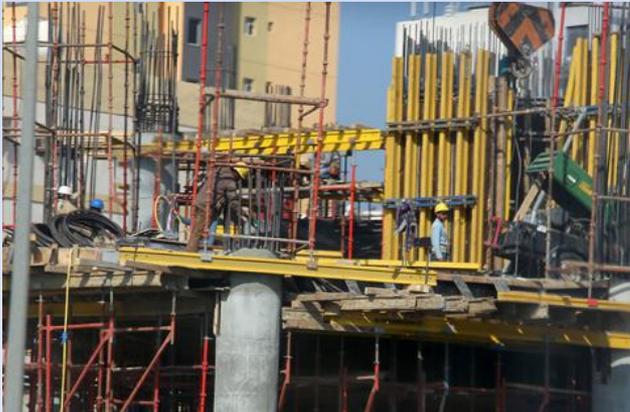
**Construction Design and Management (CDM) 2006**



**Design for Safety 2016**

# Schematic Design of Temporary Works

Conduct pilot trials to improve the constructability of the permanent works through early identification of the potential safety hazards



# Safety Role of RSS

## Enhanced Role of Professional Resident Site Staff (RSS) in Site Safety of Mega Works Projects

This memo is to promulgate the enhanced role of professional grade RSS in the safety supervision of mega works projects.

2. The occurrence of a series of serious accidents in large-scale public works projects in late 2012 received serious attention of DEVB and the Labour Department. A meeting was held among DEVB, Works Departments and Labour Department in February 2013 and it was agreed, among other things, that the professional grade RSS in “mega works projects” could play a more proactive role to ensure the safe systems of work on sites. It was agreed that the role of professional grade resident site staff (RSS) in day-to-day supervision of “mega works projects” could be enhanced by requiring: -

- (a) dedicated professional grade RSS to participate in the weekly safety walk;
- (b) dedicated professional grade RSS to carry out spot checking of high risk construction activities; and
- (c) dedicated professional grade RSS to carry out daily review with the Contractor of all high risk activities.

# Surprise Audits

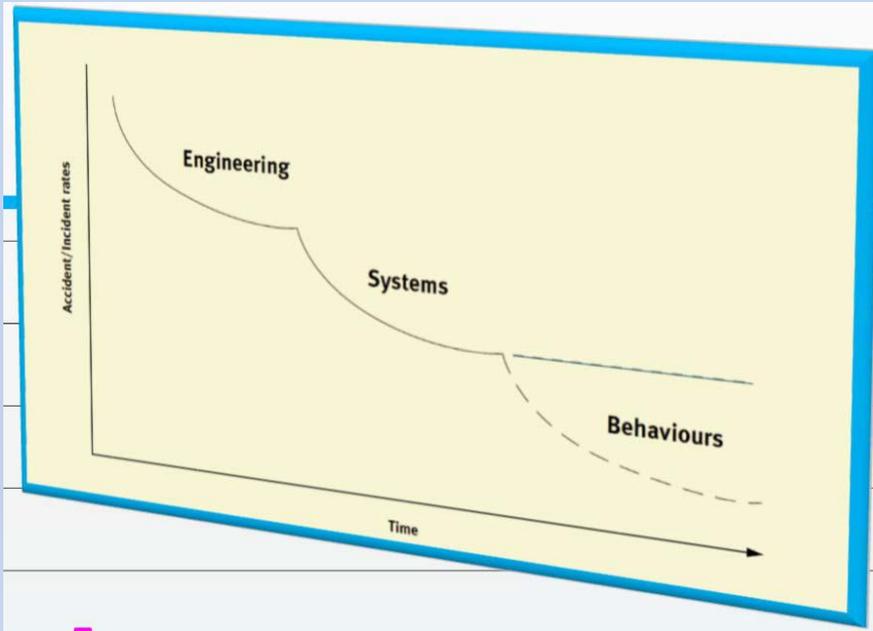
- Conducted **surprise audits** by Independent Audit Team of works departments for contracts with
  - poor safety performance
  - high accident rate ( $> 0.5$  per 100,000 man-hours)
  - suspension notice(s) issued from Labour Dept
  - severe accidents / dangerous occurrences



# Monitoring of Accidents in PWWPs



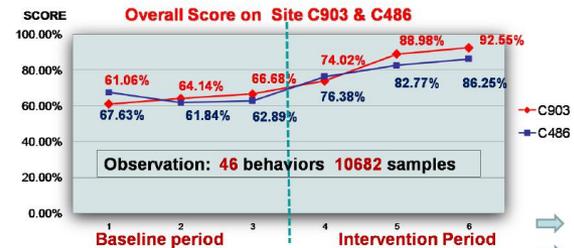
# Behaviour Advancement Programme



Conduct wider trials for improvement of workers' behaviour

## Behavior Observation and Scoring

$$\text{Score} = \frac{\text{Number of observed safe behaviors}}{(\text{Number of observed safe behaviors} + \text{Number of observed unsafe behaviors})} \times 100\%$$



| Grade | Poor        | Basic         | Good          | Very Good      |
|-------|-------------|---------------|---------------|----------------|
| Score | 0 ≤ S < 50% | 50% ≤ S < 70% | 70% ≤ S < 90% | 90% ≤ S ≤ 100% |

# Welfare for Workers

## Implementation of measures for preventing heat stroke at work under hot environment

| Item No.                  | Description  | Quantity | Unit   | Suggested Amount<br>(% of contract value <sup>#</sup> ) |
|---------------------------|--|----------|--------|---|
| A                         | Provide Safety Officer   | 48       | nr-mth | 0.216%  |
| B                         | Attend Site Safety Management Committee  | 24       | mth    | 0.050%  |
| C                         | Attend Site Safety Committee   | 24       | mth    | 0.050%  |
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| G                         | Provide safety training in the form of toolbox talks                               | 30       | mth    | 0.102%  |
| H                         | <u>Provisional Sum</u>   |          |        |   |
|                           | Participate in safety promotional campaign as instructed by the Architect/Engineer | -        | sum    | 0.030%  |
| I                         | Arrange and hold Pre-work Activities of Site Safety Cycle                          | 30       | mth    | 0.480%  |
| J                         | Prevention of heat stroke at work in a hot environment                             | 10       | mth    | 0.050%  |
| Total to Collection Sheet |  |          |        | 1.2%  |

CONSTRUCTION INDUSTRY COUNCIL  
建造業議會

**GUIDELINES ON  
SITE SAFETY MEASURES FOR  
WORKING IN HOT WEATHER**

www.hkcic.org

Version 2  
April 2013

# Welfare for Workers

Provisions of builder lifts for high rise buildings > 30m or 8 storeys for better access and egress of workers



The requirements for builders' lifts will be incorporated into the Tender Documents, wherever applicable, as follows –

- (i) It is required that for the construction of a high-rise building over 30m high or 8 storeys measured from the main access level up to the main roof, whichever is lower, a Builder's lift will be installed in order to provide a better means of access and egress for workers and site supervisory staff. It will also improve the safety and health of the working environment in building construction sites and productivity of the workers.

# Responsibility & Accountability

## 11/4/2019 項目經理、地盤總管、工人及地盤安全主任因違犯安全法例被判罰款

項目經理、地盤總管、工人及地盤安全主任因違犯安全法例被判罰款

\*\*\*\*\*

一名項目經理、一名地盤總管、一名工人及一名地盤安全主任因違犯《工廠及工業經營條例》的規定，被勞工處檢控，今日（四月十一日）在西九龍裁判法院分別被判罰款五千元、五千元、五千元及八千元。

案情涉及二〇一七年十月二十日在東涌一個建築地盤發生的一宗致命意外的調查。在調查過程中，該地盤項目經理、地盤總管及工人沒有依從勞工處職業安全主任就該意外調查所作出的要求，接受訪問並簽署聲明。另外，該地盤安全主任妨礙及拖延職業安全主任行使條例所授予他們的權力。

勞工處發言人說：「我們絕不容忍任何不遵從職業安全主任根據《工廠及工業經營條例》規定所作出的要求，或妨礙或拖延職業安全主任行使條例所授予他的權力的違法行為，並會竭盡所能將違例者繩之於法。」

完

上水名都巴黎閣去年發生的致命升降機意外，負責該升降機的73歲註冊電梯工程師吳茂盛承認「沒有確保升降機工程妥善進行」的控罪，在粉嶺裁判法院被判罰款4萬元。他在案發後因壓力而辭去逾40年的工程師一職。

去年5月11日，64歲女住客郭妙英在7樓進入升降機時，升降機門突然關上將女事主夾著失控上升，女事主直墮槽底喪命。

涉案的升降機保養承辦商耀天工程有限公司及公司總經理劉慶秋，早前已承認「沒有確保升降機工程妥善進行」，以及「外判升降機保養工程前沒通知機電工程署署長」等控罪，分別被判罰款63000元及33000元。

## 2/5/2019 躉船浮標燒焊爆炸 巴籍工人亡 家屬向承建商 索償

「中環及灣仔繞道—北角段隧道及東區走廊連接路工程」於3年前動工期間，一個躉船浮標在燒焊期間發生爆炸，導致一名38歲巴籍工人死亡和另一名工人受傷。死者家屬前日(4月30日)就事件入稟高等法院向承建商索償。

兩名原告分別是死者Mamraiz Khan的代表，及死者的家屬代表Musrat；兩名被告分別是俊和 - 中國中鐵 - 中鐵大橋局聯營公司，及中國鐵路工程(香港)有限公司。

入稟狀指稱，死者於2016年5月4日在東區走廊北角段對開的躉船浮標工作時，遇上致命意外死亡，事件是因兩名被告疏忽和違反僱傭合約所致，兩名原告因此向兩名被告索償。

## 26/4/2019 上水名都致命升降機意外 電梯工程師認罪判罰款4萬元





# Tragedies...

defendants, 57 summonses

- 16 summonses each to 3 partners of main contractor
- 2 summonses to consultants
- 2 summonses each to 2 involved subcontractors



- 1 summons to Foreman on site
- 1 summons to General Site Manager
- 1 summons to Senior Engineer of consultants

# Responsibility & Accountability



葛麦斯驾车43载，不仅从未发生过交通事故，甚至连一次违章纪录都没有，因此在他退休前，交通部决定颁发一枚“优秀模范驾驶奖章”给他。颁奖当天，记者问葛麦斯如何才能做到平安驾车呢？葛麦斯回答道：“其实开车时，我都由家人陪着啊！不过乘客看不到我的家人，因为他们都在我的心里。”葛麦斯笑着说：“想想你的妻子正等着你吃晚餐；你还要陪孩子上学；年迈的父母正是需要你照顾的时候……你就会小心驾驶。”原来，葛麦斯的秘诀，就是时时刻刻把对家人的爱放在心中。





**Zero**<sup>“</sup>**0**<sup>”</sup>意外  
ACCIDENT

地盤零意外 關懷建未來  
Zero Accident, we Build, we Care