

HASAS(NW) – 2018Q2 - 2018Q3

HALENSAS – 2018Q2 - 2018Q3

Summary on Audit Findings

安全稽核結果

Occupational Safety and Health Council

職業安全健康局



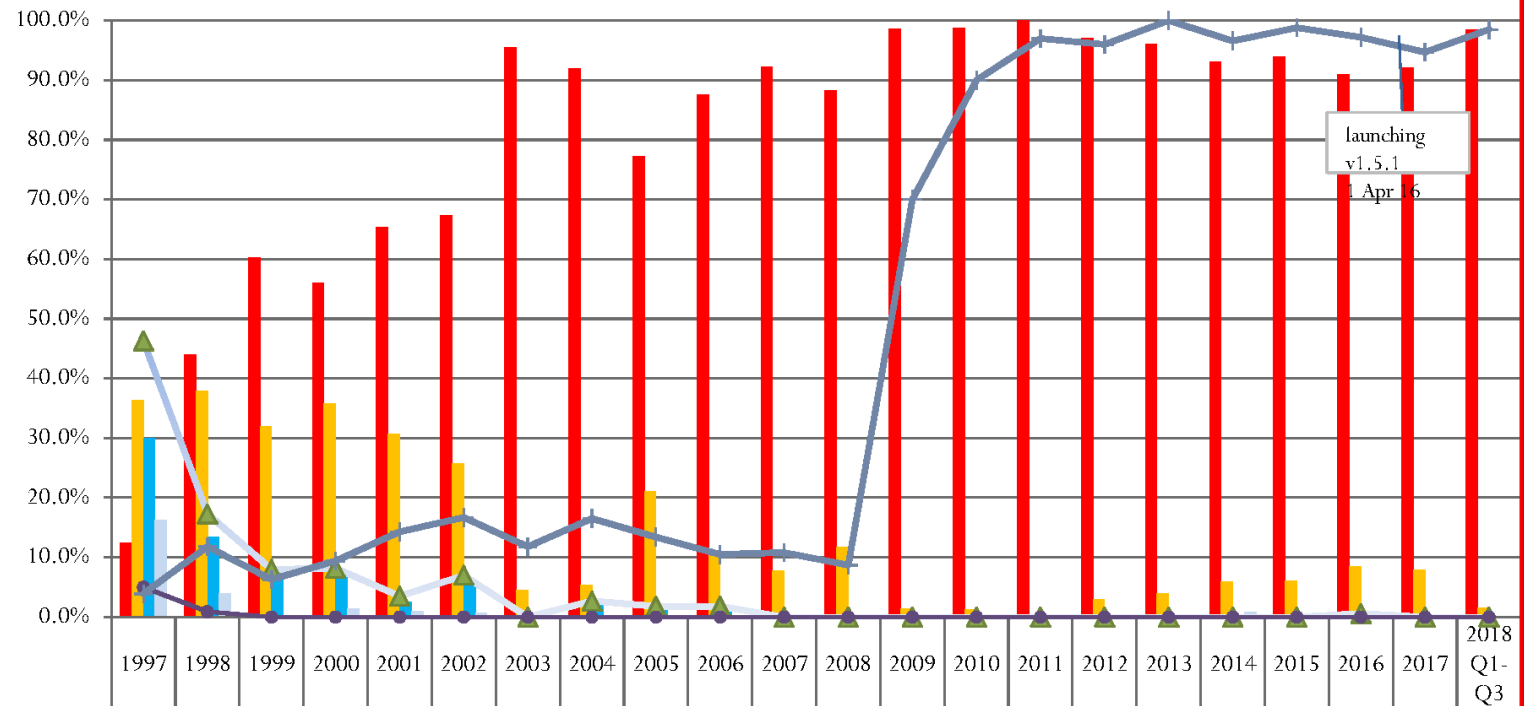
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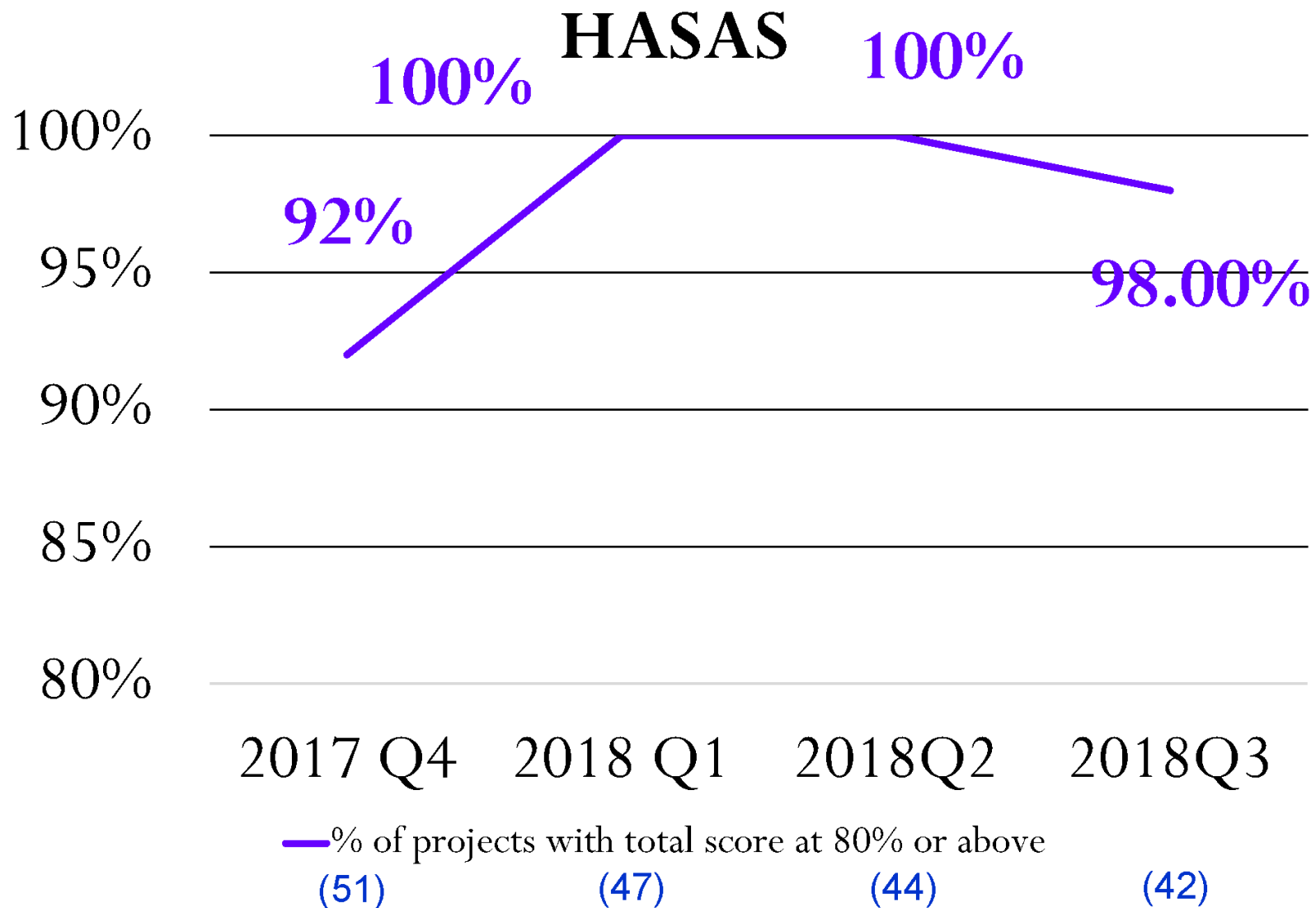
Overview on HASAS Performance

安全審核表現總覽

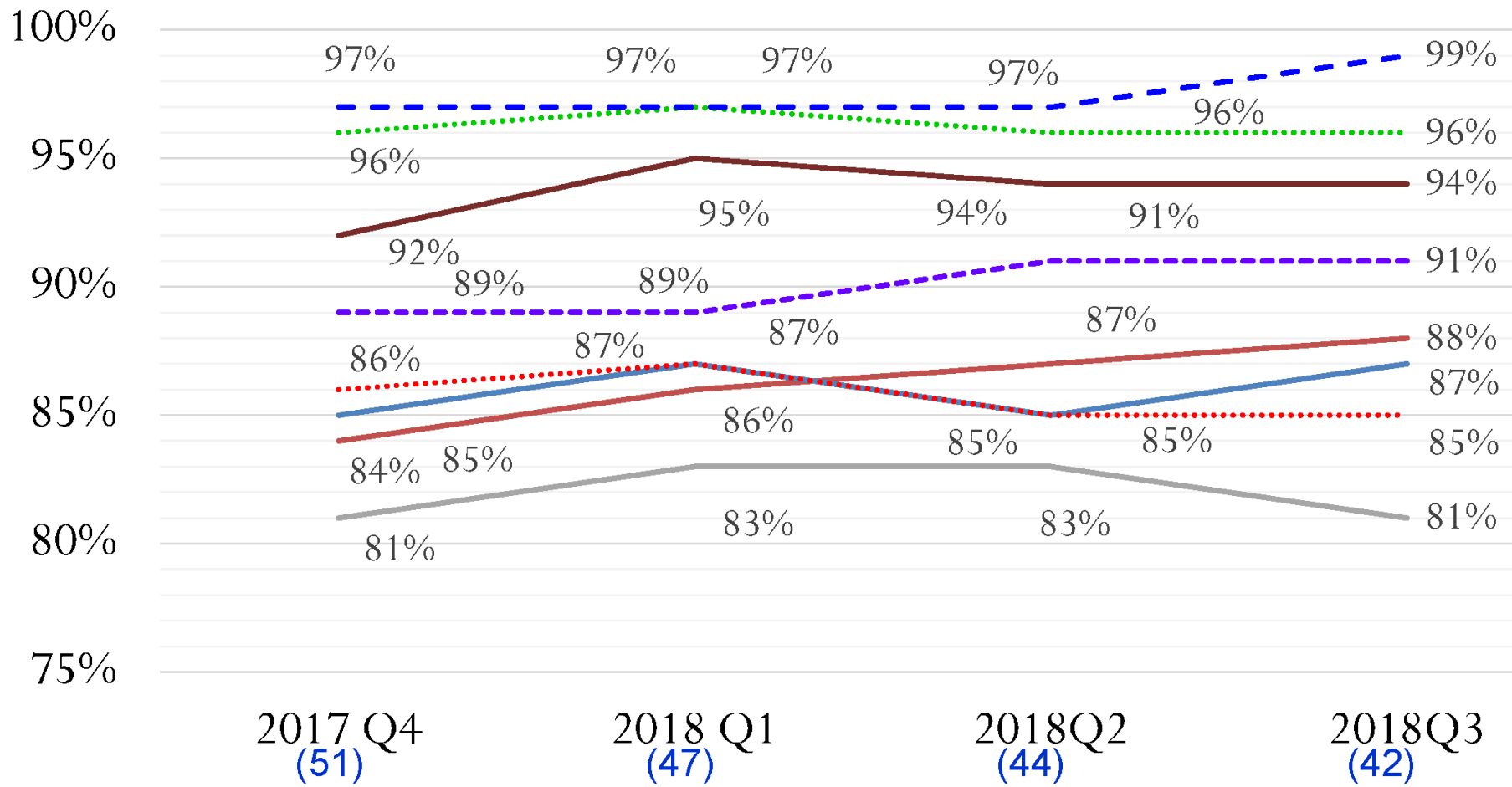
HASAS score trends of building contracts (from 1997 to 2018Q3)



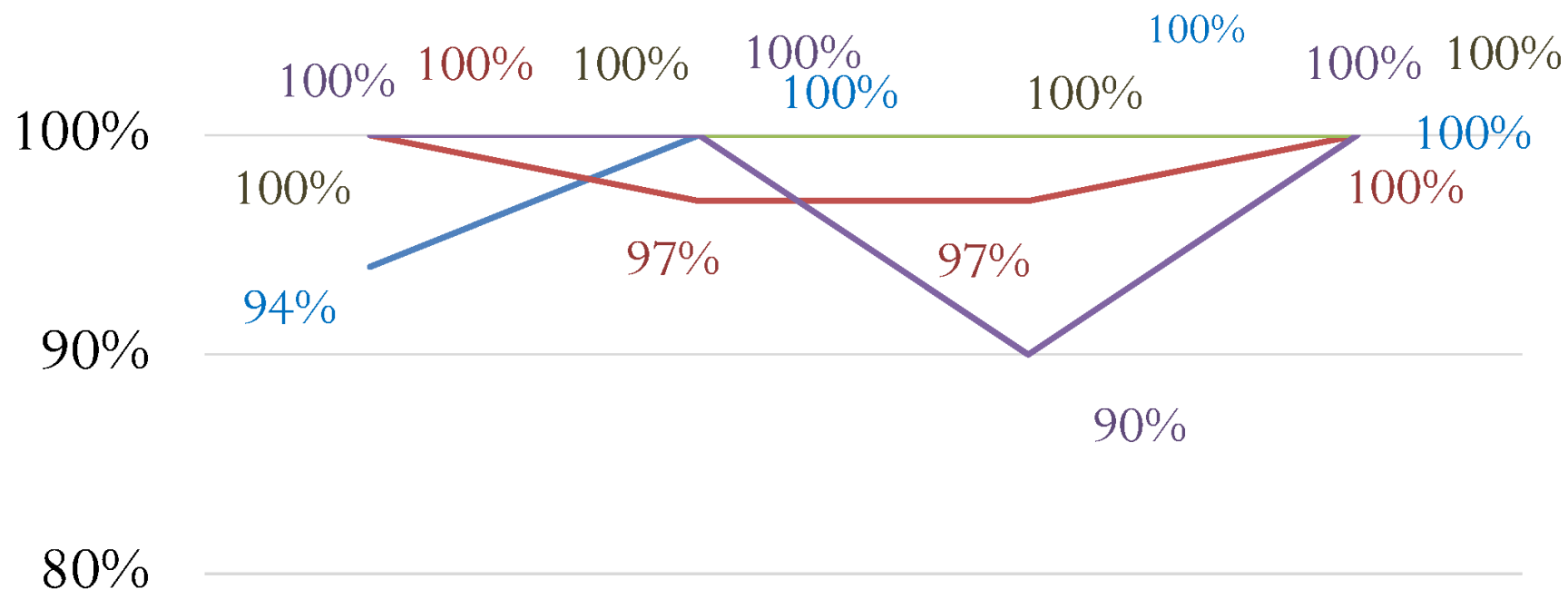
■ Part A & Part B $\geq 80\%$	12.5%	44.0%	60.2%	56.0%	65.3%	67.4%	95.5%	92.0%	77.2%	87.5%	92.2%	88.3%	98.6%	98.8%	100.0%	97.0%	96.0%	93.1%	93.9%	91.0%	92.1%	98.5%
■ 80% > Part A & Part B $\geq 70\%$	36.3%	37.9%	31.9%	35.8%	30.7%	25.7%	4.5%	5.3%	21.1%	10.7%	7.8%	11.7%	1.4%	1.2%	0.0%	3.0%	4.0%	6.0%	6.1%	8.5%	7.9%	1.5%
■ 70% > Score $\geq 50\%$	30.0%	13.4%	8.0%	6.8%	2.5%	6.3%	0.0%	2.7%	1.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%
■ 50% > Score $\geq 30\%$	16.3%	3.9%	0.0%	1.4%	1.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%
▲ 70% > Part A or Part B	46.3%	17.3%	8.0%	8.2%	3.5%	7.0%	0.0%	2.7%	1.8%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%
● Score < 30%	5.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
+ % of all critical pass items $\geq 70\%$	3.9%	11.8%	6.3%	9.4%	14.3%	16.7%	11.8%	16.5%	13.4%	10.5%	10.8%	8.7%	70.0%	90.0%	97.0%	96.0%	100.0%	96.6%	98.8%	97.2%	94.7%	98.5%



HASAS Critical Pass Items



% of projects with total score at 70% or above



	2017 Q4	2018 Q1	2018Q2	2018Q3
HALENSAS	94%	100%	100%	100%
Electrical audit	100%	97%	97%	100%
FS audit	100%	100%	100%	100%
AC audit	100%	100%	90%	100%

Executive Summary

1. Working at height, housekeeping, falling objects and lifting operations are **the key problems** in HA sites
2. Provision of proper working platforms and safe means of access to workplace are the major areas need to be improved by contractors
3. Poor housekeeping remains unsatisfactory and needs special attention.
4. Protection against electrical safety should be improved
5. Protection against falling from height should be improved

1. 高空工作，工地整理，高空墮物及吊運工作是主要問題
2. 提供工作平台及安全進出口是主要改善項目
3. 工地整理表現未如理想，須多加注意
4. 應加強改善電力安全
5. 改善防止人體下墮的安全措施

内容 Content

- GOOD PRACTICE 良好作業方式
- BAD PRACTICE 不良作業方式

Safe Scaffold and Workplace 安全棚架及工作場所

- Scaffolding companies need to double check their structures are safe and secure
 - Provide adequate protection for people working at height
 - ✓ Precautions must be taken where a person can fall a distance of more than 2m. If there is an increased risk of injury when falling a distance of less than 2m, eg working near a traffic route or above a dangerous surface, then suitable precautions will also be required.
 - Ensure workers have adequate and safe means of access and egress
 - Provide best practice guidance for kickstool, stepladder, ladder or tower scaffolds users
- 搭棚公司須重複檢查所搭棚架，確保安全穩固
 - 為高空工作人員提供足夠的安全保護
 - ✓ 如有人可從工作場地墮下超過兩米，搭棚公司須採取預防措施。即使下墮距離少於兩米，但如果受傷風險增高，例如工作場地接近車路或危險表面之上，亦須採取適當的預防措施。
 - 確保工人有足夠而安全的進出口
 - 為使用踏凳、踏梯、梯子或塔式棚架的人，提供良好作業指引

GOOD PRACTICE 良好作業方式

- Safe means of access and egress was provided
- 提供妥善進出口



GOOD PRACTICE 良好作業方式

- Safe means of access and egress was provided
- 提供妥善進出口



GOOD PRACTICE 良好作業方式

- Adjustable working platform was provided for reinforcement cages of bored piles works
- 為扎結鑽樁鐵籠工作提供可調節工作平台



GOOD PRACTICE 良好作業方式

- Safe working load for working platform was clearly displayed
- 清晰標明安全工作負荷



GOOD PRACTICE 良好作業方式

- Proper guard-rails and toe-boards installed for working platform
- 為工作台安裝合適護欄及底護板



GOOD PRACTICE 良好作業方式

- Proper guard-rails and toe-boards installed for working platform
- 為工作台安裝合適護欄及底護板



GOOD PRACTICE 良好作業方式

- Working platform closely boarded
- 工作台密鋪



GOOD PRACTICE 良好作業方式

- Proper guard-rails and toe-boards installed for working platform
- 為工作台安裝合適護欄及底護板



GOOD PRACTICE 良好作業方式

- Hop-up platform with guardrails and toe-boards provided
- 提供設有護欄及底護板的功夫檯



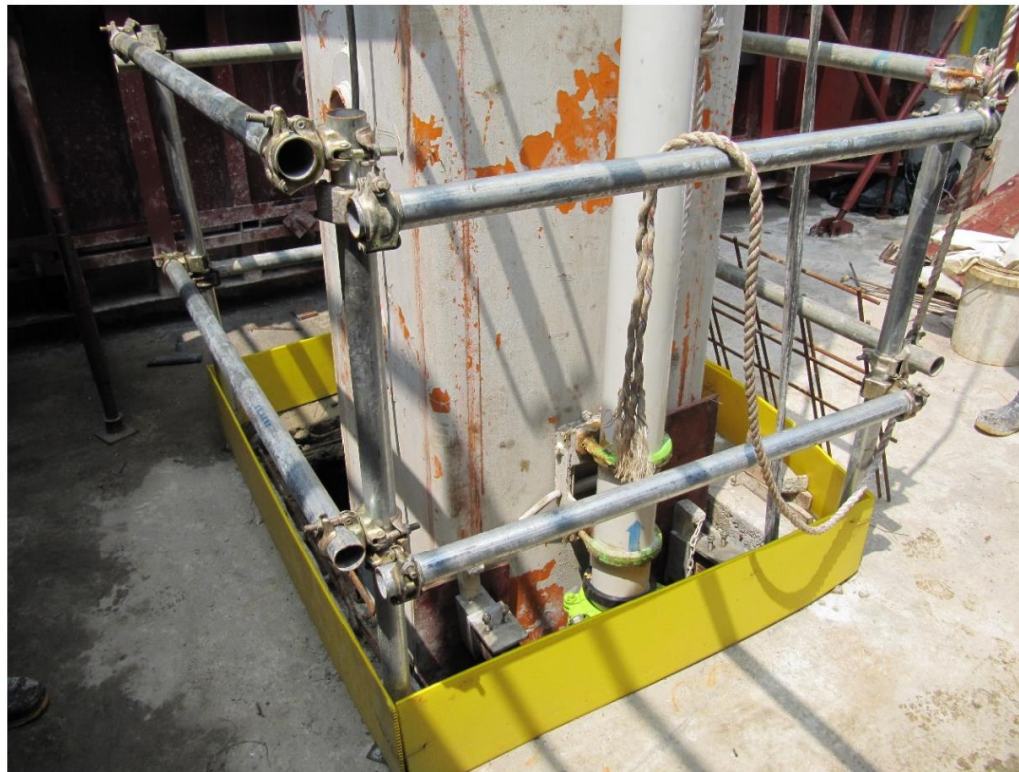
GOOD PRACTICE 良好作業方式

- Lift shaft openings enclosed and locked
- 圍封及鎖上升降機槽的開口



GOOD PRACTICE 良好作業方式

- Floor opening with proper guardrails and toe-boards
- 地洞設有合適護欄及底護板



Good Housekeeping 良好工地管理

- Poor housekeeping causes trip accident
 - Promote the importance of good housekeeping and site waste management
 - Manage the site to ensure that it is kept in good order:
 - ✓ The procurement of materials should be managed to ensure that only the minimum amount of materials are stored on site at any time .
 - ✓ Everyone working on the site should be aware of the site policy for managing the movement & storage of materials around the site, and the removal of waste from work areas.
- 不良工地管理會引致絆倒意外
 - 推動業界重視良好工地管理和工地廢物管理
 - 妥善管理工地，確保符合各項要求：
 - ✓ 物料採購應管理得宜，確保任何時候在工地存放的物料減至最少；以及
 - ✓ 所有工地的工作人員，應留意關於管理在工地移動和貯存物料，以及從工作地點移除廢物的工地政策。

Good Housekeeping 良好工地管理

- Everyone on site needs to play their part.
 - ✓ Walkways and stairs should be kept clear and free from obstructions.
 - ✓ Work areas should be kept as clear as possible of unnecessary materials and waste.
 - ✓ Materials should be stored safely, whether in the site compound or around the site
 - ✓ Workers should comply with the site arrangements for the removal of waste.
 - ✓ Problems should be reported to site management
- 所有工地人員均有責任確保：
 - ✓ 行人路和樓梯應保持暢通無阻；
 - ✓ 施工地點應盡量保持整潔，沒有多餘的物料和廢物；
 - ✓ 不論在工地範圍內或周圍地方，應以安全的方式存放物料；
 - ✓ 應遵從關於移除廢物的工地安排；以及
 - ✓ 如有問題，應向工地管理人員報告。

GOOD PRACTICE 良好作業方式

- Designated storage area with fencing
- 圍封指定存儲區域



GOOD PRACTICE 良好作業方式

- Sharp objects were protected
- 為尖銳的物體作出保護



GOOD PRACTICE 良好作業方式

- Sharp objects were protected
- 為尖銳的物體作出保護



GOOD PRACTICE 良好作業方式

- Proper wedge was provided
- 提供適當楔子存放圓筒物料



Lifting Operations

- Lifting Appliances
- Lifting Gear

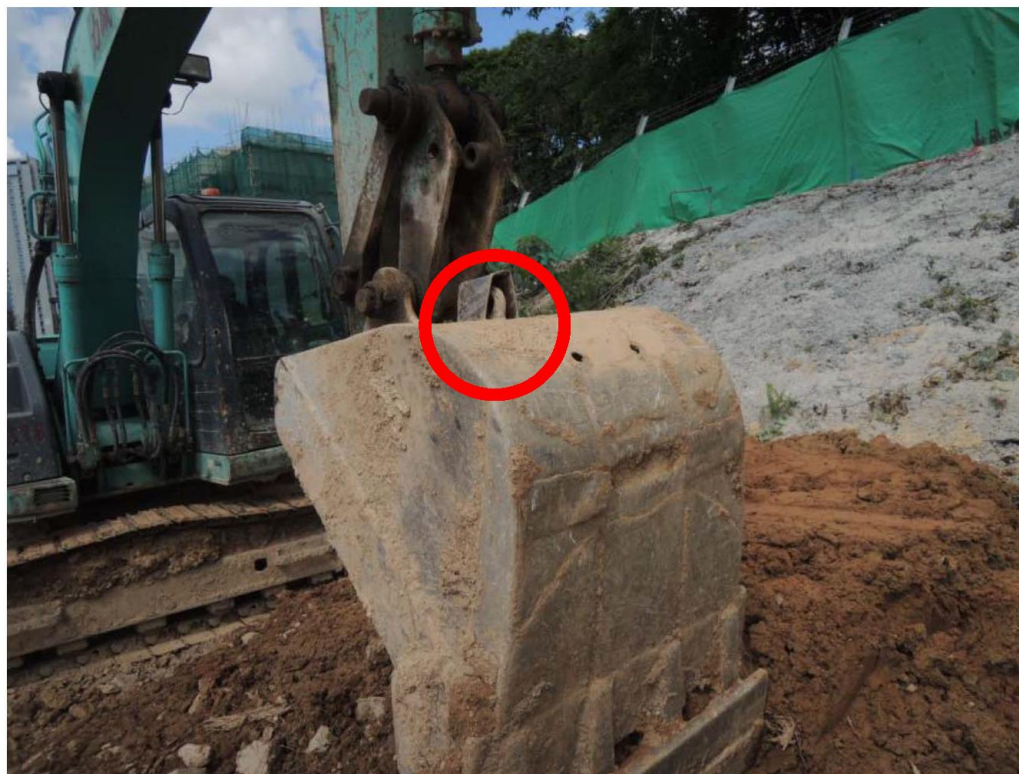
GOOD PRACTICE 良好作業方式

- Lifting zone was fenced off
- 圍封吊運區



GOOD PRACTICE 良好作業方式

- Covered the lifting hook of excavator
- 封好挖掘機不使用的吊鉤



Others

- Site traffic
- Protection against falling objects
- Excavator
- Abrasive wheels
- Gas welding
- Chemical Substances
- Fire fighting equipment
- Personal protective equipment

GOOD PRACTICE 良好作業方式

- Demarcate working area properly
- 妥善分隔工作地方



GOOD PRACTICE 良好作業方式

- Covered walkway provided
- 提供有蓋行人通道



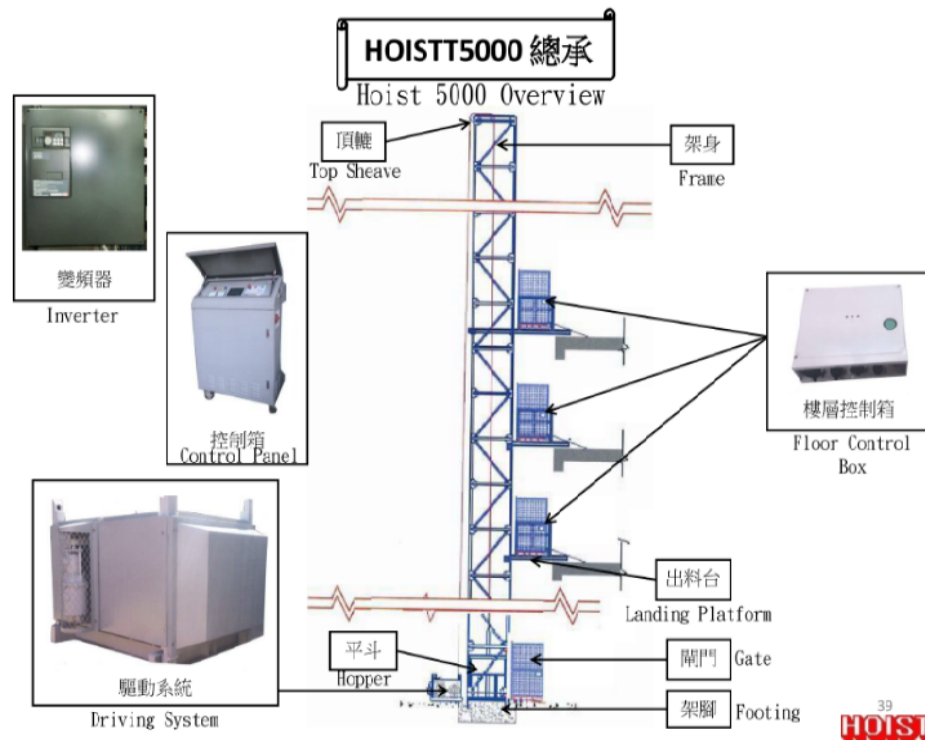
GOOD PRACTICE 良好作業方式

- CCTV provided for excavator
- 為挖掘機提供倒車視像系統



Safety Innovation 創新工地安全措施

- RFID Material Hoist Landing Gate Locking System
- 物料吊重機射頻識別技術開關系統



- RFID user card system was used as the start key for material hoist at the control panel. The RFID cards are only given to the designated operators. Site Mechanics had edited the system and restricted the transportation of materials in only one direction from ground floor to the landing floor, of which, transportation between any two landing floors is not allowed.
- RFID射頻識別技術用戶卡被用作控制物料吊重機的啟動鑰匙。RFID卡僅供給指定的操作員。機械部已對系統進行了編輯，限制了必須要從地面至樓層的一個方向物料運輸，任何兩個層站之間的運輸都是不允許的。

Safety Innovation 創新工地安全措施

- Fabrication of Reinforcement Cages Working Platform Extension
- 扎結鐵籠可伸延工作台

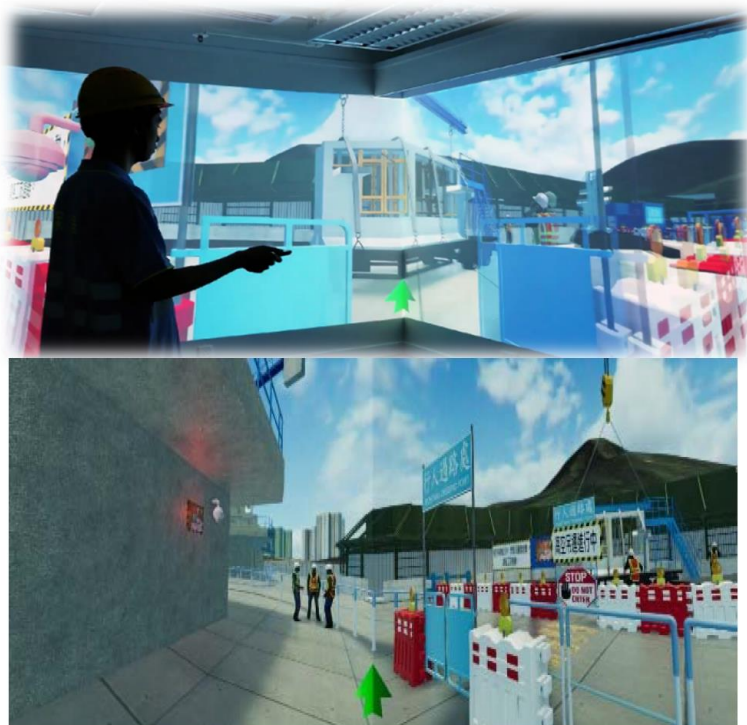


- This working platform is adjustable which can reduce the gap between reinforcement cage. It can reduce related accident.
- 使用這個可調較的工作台，可減少工作台與鐵籠之間的距離，減少相關的意外發生。



Safety Innovation 創新工地安全措施

- Apply BIM and VR technology in safety training
- 建造資訊模型(BIM)和虛擬實境(VR)的科技進行安全訓練



- Using BIM and VR technology in safety training, it is an easier way for workers to safety at work. The interactive scenes can allow the workers to experience the actual operation on the site.
- 讓工友利用虛擬實境的技術更容易吸收安全訓練的內容，並透過可互動的場景來體驗工地的運作情況。



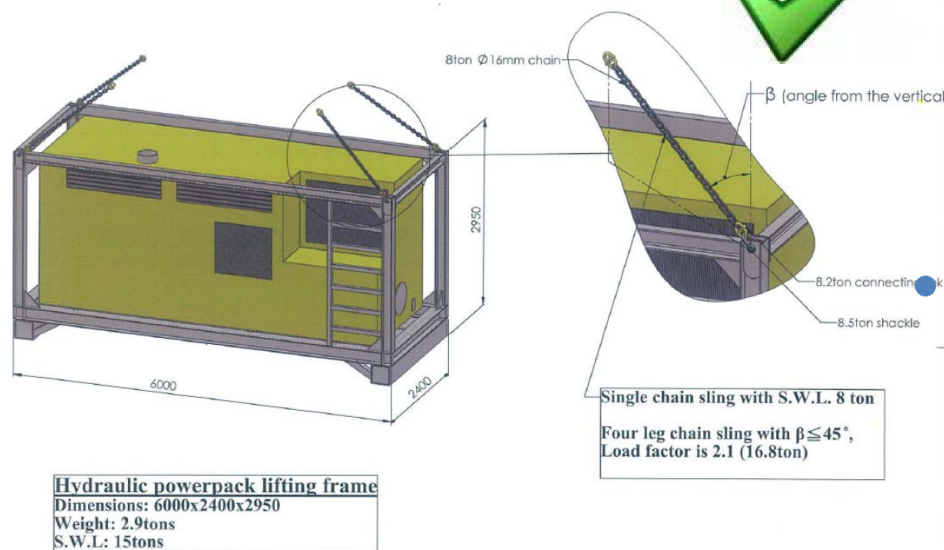
Safety Innovation 創新工地安全措施

- External Wall Mounted Working Platform with Wall Mounted Catch Fan
- 外牆式工作平台連掛牆斜棚
- The external wall mounted working platform was installed with catch fan which could help to collect falling materials of the building. This safety design could effectively improve the risk of falling objects.
- 外牆式工作平台及裝有掛牆斜棚，有助收集建築物的下墜物。這安全設計可以有效地改善物料下墜的風險。



Safety Innovation 創新工地安全措施

- Bridging Chains on Corners of Steel Frame
- 吊架加裝接駁短鏈



- Adding bridging chains on the 4 corners of steel frame to eliminate workers to work at height while rigging. This device would allow workers rigging on ground and reduce the chance to work-above ground. It can effectively eliminate the risk of working at height while rigging.

於吊架頂部每隻角位置，加裝接駁鏈一條(即共4條)，以便埋碼員可以站於地上進行埋碼工作，以完全剔除高空工作之風險。

Safety Innovation 創新工地安全措施

- Smart Tag
- 智能吊牌



- Print the tailor made Smart Tag on the 3D printer with RFID label. Worker/Site Supervisory Staff can read the lifting certificates information by touching the Smart Tag with their mobile phone.
- 根據不同吊具尺寸以3D打印機度身訂造內置RFID標籤吊具牌，工友/地盤管理人員以手機觸碰標籤以閱讀吊運証書資料。

Safety Innovation 創新工地安全措施

- Permanent working platform at the trailer for handling precast facade
- 拖車預製件永久工作平台
- The permanent working platform was installed at the trailer to reduce the worker using temporary working platform or ladder. Risk of fall from height would be reduced significantly. This provision would further enhance the working at height safety and improve the efficiency of the worker.



安裝在拖車上之預製件永久工作平台，可以減少埋碼員在臨時工作台或梯子上進行埋碼工作。從而減少從高處下墮的風險。這項設計將進一步改善高空工作的安全，並提高工作效率。

Here is the footage of

“Site Safety Seminar for Capital Works New Works Contracts”

which was held on 7 November 2018

by the Hong Kong Housing Authority

The Speaker is

Mr. Jack Fong, Senior Consultant of OSHC

His topic is Housing Authority Safety Auditing System (HASAS) Version 1.5.1

(For Building and Engineering Contracts) – Finding in Q2 & Q3 of 2018

I wish to report to you

the results of the Housing Authority Safety Auditing System (HASAS) and

Housing Authority Lift & Escalator NSC Safety Auditing System (HALENSAS)

at 2nd and 3rd quarters of 2018

Let us first take a look at the trend in the past 8 years

Until now, we have completed audits for 3 quarters in this year

compared to 2016 and 2017

the performance indicated slight improvement

However, there was a drop in last quarter

We conducted 44 audits in the 2nd quarter

42 in the 3rd quarter

The average was 80 marks and above

It showed a downward trend

Taking a look at some Critical Pass Items

There were 8 types, the worst was Housekeeping (our special concern)

The average was lower than that of last quarter by 2 marks

There was some influence generally

NSC performance was generally fine

In the 3rd quarter, all achieved over 70 marks

Look at these photos

First, the better examples

The up and down passageways were ideal

These platform entrances and exits

were at ideal locations

This was where a reinforcement cage was

There was a work platform

The original design of the work platform

had a gap here

The previous audit recommendation was undertaken

and improvement was made

to build an adjustable work platform

This part could be extended to reduce the gap

This was a bar bending working platform

Safe loading was very important

The number of persons allowed had been clearly stated

This display was very clear

These were guardrails and toe-boards

Basically the arrangements were fine

Another scenario

Bamboo scaffolding

If the bamboo scaffolding does not provide closely spaced bamboo

The planking must be closely paved

This is closely spaced bamboo scaffolding

Guardrails and toe-boards extended to become working platform

All these were ideal

Hop-up platforms were usually used indoors

We saw Nominated subcontractors (NSC) using them too

At the opening of lift shaft

the installation of a 4-panel gate was ideal

Other recent concerns were floor openings at internal working areas

These were also properly handled

There were guardrails and toe-boards for the floor openings

providing instant protection

For site housekeeping

these were designated storage areas

These were sharp starter-bars, they were covered by caps

Cylindrical materials were provided with wedges to prevent rolling

Now, lifting areas were required to follow Code of Practice (COP)

giving workers sufficient protection

This was a proper example

When not in use, the lifting hook of an excavator

must be sealed in advance

Besides, in work areas

there should be a separate pedestrian passageway

Excavators must be provided with a reversing video device

This installation is quite common

There are innovative safety measures

I would introduce a few here

For material hoists

Radio Frequency Identification (RFID) technology was used in workers' check in

Only workers with RFID card were authorised to operate

There was a programming in this material hoist

controlling it to stop only at ground and the working floor

but not from floor to floor

This would reduce unnecessary risks

As mentioned just now

extendable working platforms were used at locations for bar bending

and gaps could be reduced

Building Information Modelling (BIM)

and Virtual Reality (VR) technology

can be added to the induction training

For example, this shows the lifting of precast facades

Workers can get a hands-on experience of the process

This was an external wall mounted working platform with wall mounted catch fan

Very often, when the catch fan was raised

when the concrete work of a floor was finished

This catch fan was lifted every 5 floors

The purpose was to keep as closely as possible to the working floor

that was to reduce the chance of falling objects

and stop materials from falling during work

Bridging chains were added on corners of steel frame

an easier way to explain, it was a short chain is put in each corner

During lifting, workers on the ground floor could carry out rigging

They need not climb up or use a ladder

They only have to work on ground level

This reduced the risks of working at height

This was smart tag of lifting tools, a RFID technique

Custom made with 3D printing

According to the tools and their designs

different tags could be printed with RFID cards fitted internally

Foremen and workers could use these tags with ease

using a smart phone to read lifting certificates and other information

e.g. "Is it still effective and feasible?"

Permanent working platforms could be fixed on trailers

for handling precast components

Working platforms were prepared for hanging and removing the hooks

Platforms and ladders were not needed to attach the hooks

This could be fixed on the trailer in advance

Then I will explain HALENSAS the Housing Authority Lift

and Escalator NSC Safety Auditing System

There are a few slides to share

All sites generally have these barriers

with warning signs and notices, so no elaboration is needed

Also, a guard-rail, as well as a toe-board

At the top was a tested eye bolts to prevent falling

But I must say the green spray was not necessary

Colours are merely for lifting differentiation

Colours are not necessary to prevent falls

A Registered Professional Engineer's certification would be enough

Also, floor openings were securely covered

Materials were properly stored

These were fine then

Another recommendation, adopted by this contractor

used by this contractor

was a higher standard, IP67 water-resistant device

That is about all

Thank you

Thank you for watching