



協興工程有限公司
HIP HING ENGINEERING CO LTD
新創建集團成員 Member of NWS Holdings



高處工作良好作業分享會

Sharing Section for Working-at-Height Safety

協興工程有限公司

設計及建造啟德稅務大樓工程項目

合約編號 Contract No. SS F505





項目簡介

工程範圍:

由地基平整至樓宇興建
一幢17層樓高及1層地庫
行人天橋連接大廈

樓宇面積比率 GFA: 73,046 sq.m

業主: 建築署

總承建商: 協興工程有限公司

工期: 18/08/2018- 19/12/2021 (1220天)

合約模式: 設計及建造 Design and Build



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The TEAM

Client

Contractor

Design Consultants



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Architectural Designer
Ronald Lu & Partners



Structural/Civil/Geotechnical Engineer
Building Services Engineer
Sustainability Engineer
Acoustic Engineer
Traffic Engineer
BEAM Plus Consultant
Ove Arup & Partners

ARUP

Landscape Designer
ADI Limited



Interior Designer
Arva Ltd.



Way-finding Designer
Atelier Pacific Ltd.



合約模式與工程管理的關係

合約模式	傳統合約模式 Traditional Contracts	設計及建造 Design and Build Contracts
1. 角色	發展商主導設計及工程計劃 總承建商負責興建	發展商、總承建商與則師 設計師一同合作設計, 總承建商興建
2. 責任	總承建商- Construct Responsibility	總承建商- Construct Responsibility Design Responsibility
3. 設計考量	Temporary Works Design ✓	Temporary Works Design ✓ Permanent Works Design ✓
4. 高空工作 安全的考慮	建築時期 的高處工作 安全 ✓	建築時期 的高處工作安全 ✓ 使用及維修保養時期 的高 處工作安全 ✓



Design Stage

永久使用及維修保養階段的高處工作安全考慮
建築階段的高處工作安全考慮

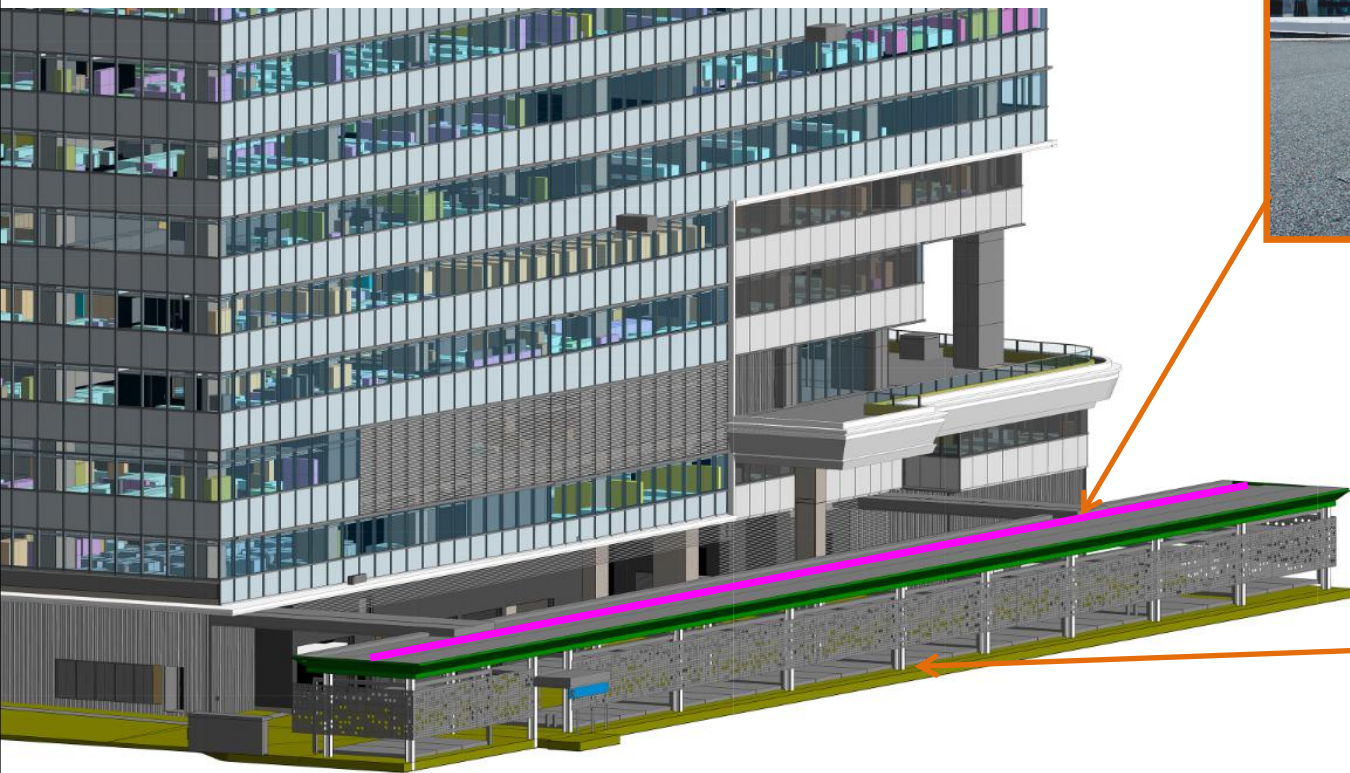


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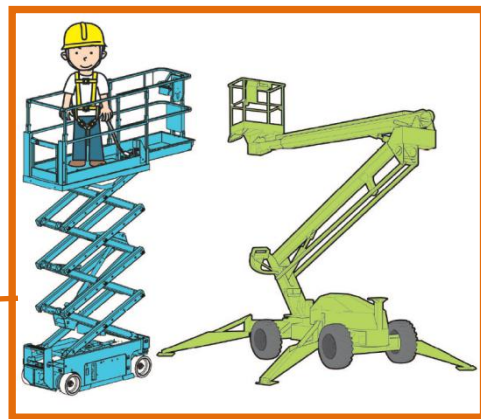
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永久使用及維修保養高空工作

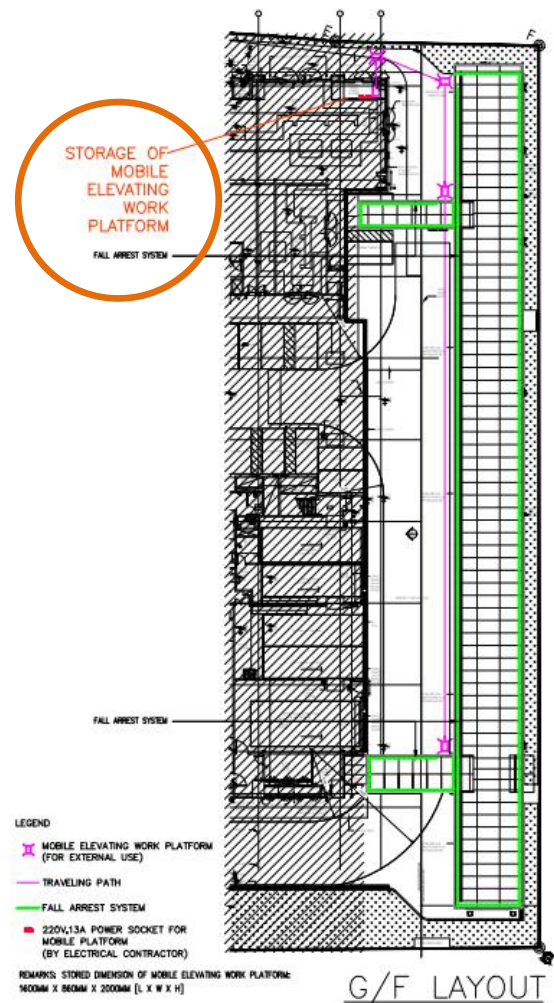


橫向式防墮系統



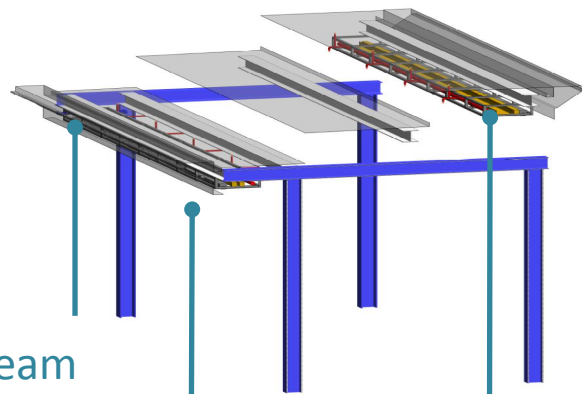
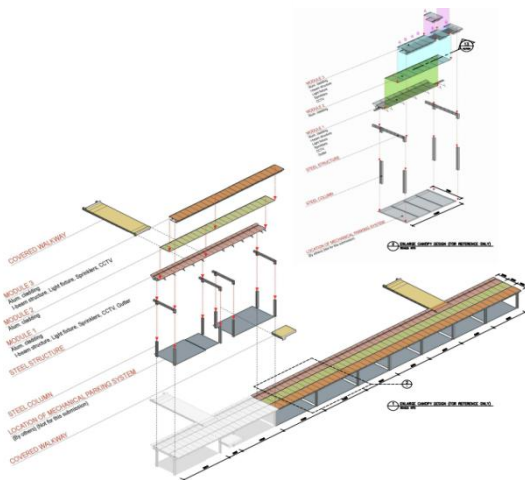
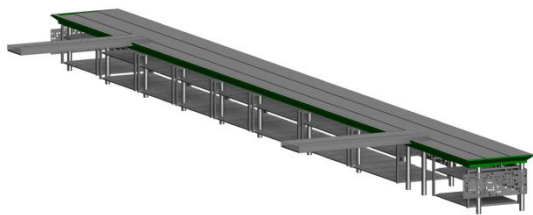
流動升降台

- 設計橫向式防墮系統
- 考慮日後管業處的需要
- 模擬流動升降台移動及伸展路徑
- 設計升降台停泊的位置及充電位置



建築階段高空工作

- 設計上使用組裝合成法 (MIC) 概念，減低工地安裝高空工作風險
- 考慮不同工種交差作業的不便



Structural Beam
with Aluminium
Cladding

CCTV / LTG / EL
Cable Trunk + FS Pipe

LTG / EL Cable Trunk
/ Cable Tray + FS Pipe

Construction Stage

建築階段的高處工作安全考慮



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高處工作危害管理

協興工程有限公司
HIPHING ENGINEERING CO. LTD.
新創建築成員 Member of NBS Holdings

Project Health and Safety Plan

for

Design and Construction of Inland Revenue Tower at Kai Tak Development Area

Contract No.: SS F505
(Programme No.:128KA)

Prepared by: Chan Chui Ping (Safety Officer) Date: 2020-04-02

Endorsed by: Leo Kim Yip (Site Agent) Date: 2020-04-02

Approved by: Poon Yai Wah (Project Manager) Date: 2020-04-02

Revision 20
TWPSKUYUCPC0HF018

(For ISAS Version 1.3)

Hip Hing Engineering Co., Ltd. - Health and Safety Manual
HS201809-SS F503 Inland Revenue Tower in Kai Tak Development

4.4.1.8 Working at Height

1. Relevant Legislation:
 1. Occupational Safety & Health Ordinance
 2. Factories and Industrial Undertaking Ordinance, Section 6A & 6B
 3. Construction Sites (Safety) Regulations
 4. Code of Practice for Building Scaffolding Safety (2016)
 5. Code of Practice for Metal Scaffolding Safety (2nd Edition - March 2015)
 6. Code of Practice for safe use of tower crane (rev2)
 7. Code of Practice on Wind Effects, Hong Kong, 1992 as its latest revision
 8. Guidelines on Classification and Use of Safety Belts and their Anchorage Systems
 9. Guidelines on Safety of Lull Booth Voids - HS2022 (Volume 1-3)
 10. Guidelines on work safety of temporary platform/gangways on construction site - Labour Department
 11. A Guide to the Provision for Safe Places of Work under Part 1A of the Construction Sites (Safety) Regulations
2. Arrangement:
 1. While carrying out the preparation of designs and site planning, the Planning Engineer shall prepare adjust site layout at each stage of work. As part of the survey of activities and its facilities, a detailed study and analysis of each work place shall be included.
 2. The Engineer shall identify all activities involve working at height in design stage and bring recorded in the Hazard Survey Report. All the potential hazard of working at height shall be noted.
 3. The Risk Assessment Team shall prepare an assessment and required controls need to be developed from the initial identifying the activities involve working at height. It gives rise to critical risk points and which, therefore, will need higher levels of control.
 4. The Area Personnel shall identify all activities involve working at height in carrying out such activities, assess shall be provided to raise workers to a suitable working level and a platform shall be built on which the job can be completed safely.
 5. Suitable working platform should be provided while working at height. If not practicable, the

128-Revision 20 Date: 2020-04-02



Hazard Survey Report

Project Name: Inland Revenue Tower at Kai Tak Development Site Location: Prince Edward Road East Job Number: HS201809-SS F503 Date: 21/07/2020

Prepared by: Chan Chui Ping (Safety Officer) Checked by: Leo Kim Yip (Site Agent) Approved by: Poon Yai Wah (Project Manager)

Hazard Survey Report		Activities to be Done		Following Date	
Activity	Location	Activity	Location	Activity	Location
1. Site Preparation Stage (Site, 00-01 Years)		1. Site Preparation Stage (Site, 00-01 Years)		1. Site Preparation Stage (Site, 00-01 Years)	
2. Ground Investigation and Site Planning		2. Ground Investigation and Site Planning		2. Ground Investigation and Site Planning	
3. Foundation Construction		3. Foundation Construction		3. Foundation Construction	
4. Superstructure Construction		4. Superstructure Construction		4. Superstructure Construction	
5. Roofing and Cladding		5. Roofing and Cladding		5. Roofing and Cladding	
6. Installation and Commissioning of Services		6. Installation and Commissioning of Services		6. Installation and Commissioning of Services	
7. Completion and Handover		7. Completion and Handover		7. Completion and Handover	

安全架構

風險評估小組成員檢視及計劃

Work above ground 離地工作 (2米以下)

Working-at-height 高空工作 (2米或以上)

- 列出涉及高空工作的工序
- 識別高處工作的風險程度 高/中/低

安全訓練活動



工地安全週- 高空工作主題



VR 高空工作訓練:

- 升降台VR訓練
- 竹棚VR訓練
- 地台洞穴VR訓練
- 離地工作VR訓練



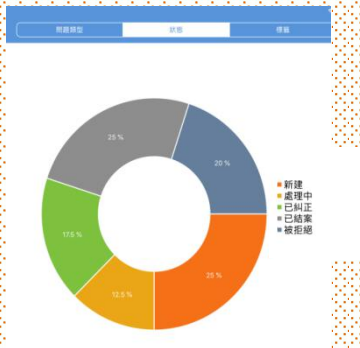
高空工作實體訓練:

- 練習穿戴安全帶及防墮扣;
- 加強檢查個人防護裝備設備;
- 檢視安全帽及帽繩狀況

安全巡查系統

Action #0029-主大樓 Main Tower地庫 BL Closed

Level 樓層	主大樓 Main Tower - 地庫 BL
Location	主大樓 Main Tower - 地庫 BL
Issue Type	高空工作
Issue Description	沒有使用工作籃
Risk	高
Non-Conformity	Yes
Cause	高空工作
Cause Description	不恰當高空工作安全行為
Action Type	Corrective
Assignee	久經 (梁總)
Cc	HE201804-S-PM, HE201804-S-SA, HE201804-S-SO, HE201804-S-SI
Target Rectification Date	06/05/2020 17:42
Proposed Corrective Action	使用合適工作籃/工作筐
Comment	Date
不檢表沒有搭好梯的工作籃 (行動) 已重新開放 上次完成日期為: 28/04/2020 上午11:14	
28/04/2020 15:48	
Photos - Before Rectification (2)	
	
WhatsApp Image 2020-04-28 at 10:37:50 P Photo 25/4/2020 11:13:07	
Photos - After Rectification (1)	
	
Photo 2/5/2020 13:37	



1. Inspection



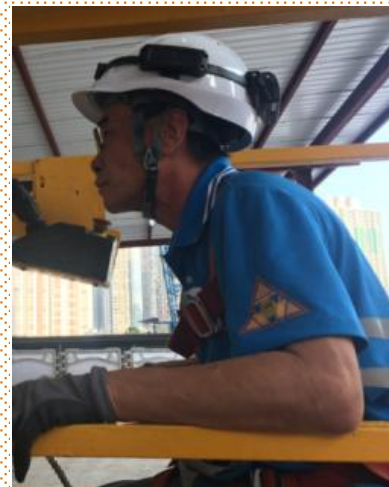
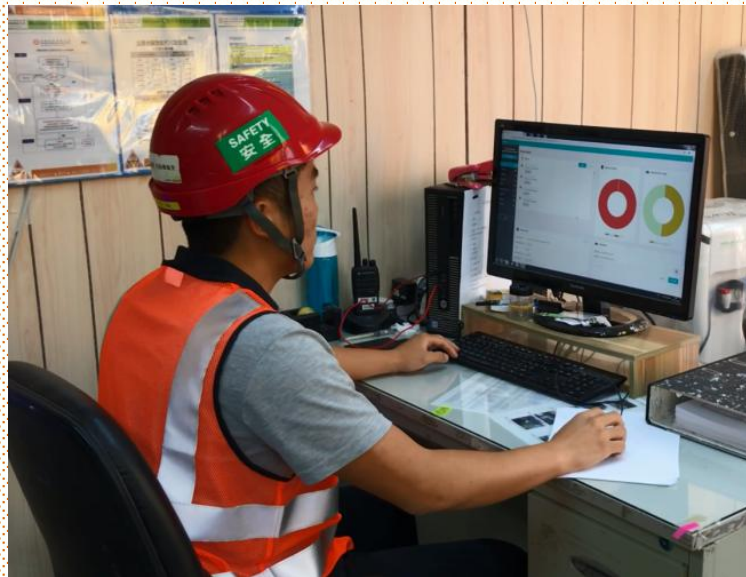
2. Permit to work



3. Improvement Notice/ Suspension Notice (IN/SN)

使用智能手機應用程式，將巡查記錄系統化及方便進行分析

安全監察警報



- 使用智能安全帽偵察高空工作工友位置
- 發出有關人體下墮意外警報

安全推廣活動



安全帽及帽繩推廣



安全之星選舉



播放高空工作短片



參與研討會及講座



邀請CIC到工地舉行午餐飯盒會

Q & A

請問工地停車場在高處工作方面的考慮，包括那些階段?

- A. 永久使用及維修保養時期
- B. 建築時期
- C. 以上皆是

Answer: C