



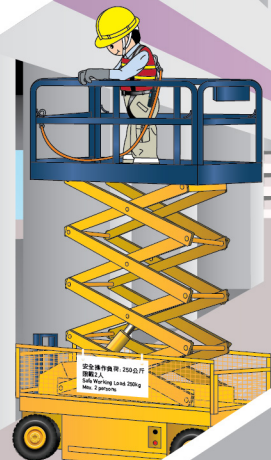
CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

屋宇裝備工程安全手冊

BUILDING SERVICES SAFETY HANDBOOK



表格五
Form 5



安全操作高度: 2.60 公尺
淨重: 240 公斤
最大工作負載: 220kg
Max. 2 persons



第三版
Version 3

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簡介 INTRODUCTION

近年建造業有關屋宇裝備工程及保養維修的工作時有發生死亡意外，意外多涉及離地及電力安裝/維修等工作。當中包括利用“假天花”作為站立位置而導致人體下墮或於狹窄的工作環境下觸電等情況。建造業議會認為要防止意外發生，各持份者須明白有關的安全角色及責任並於建造週期的不同階段，盡早就工作安全作出相應的考慮及行動。

建造業議會希望透過製作此安全手冊，為業界各持份者提供參考資料，內容包括屋宇裝備工程及保養維修工作的常見意外成因，於設計、建造及維修階段的良好工作實例等。希望各持份者可因應不同情況及早制定及實施相關的安全措施以減低工作風險。工友亦可透過此安全手冊，進一步了解於工作時可能遇到的風險藉此加強自身的安全意識。

The number of fatality cases in the construction industry related to building services and maintenance operation has increased in recent years. Most cases are related to workers falling from height when using “false ceiling” as a working platform and workers suffering from electrical shock when working inside a narrow space. The Construction Industry Council (CIC) believes stakeholders should understand clearly their roles and responsibilities, and take necessary considerations and actions at different stages of the project as early as possible to prevent accidents.

The CIC would like to provide relevant information to the industry on some common accidents in the industry and the good practices that should be adopted. Stakeholders shall take note to the safety measures as recommended and implement them to minimize works related risks. Frontline workers could also make reference to the content details provided and further enhance their safety awareness.

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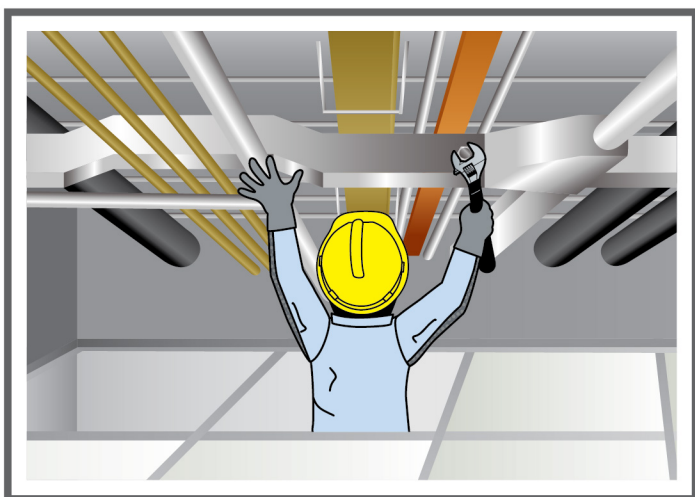
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常見的意外

COMMON ACCIDENT

工友站立在木梯上於假天花內進行工作，不慎從高處下墮。

Worker fell from a wooden A-ladder while carrying out work inside false ceiling.

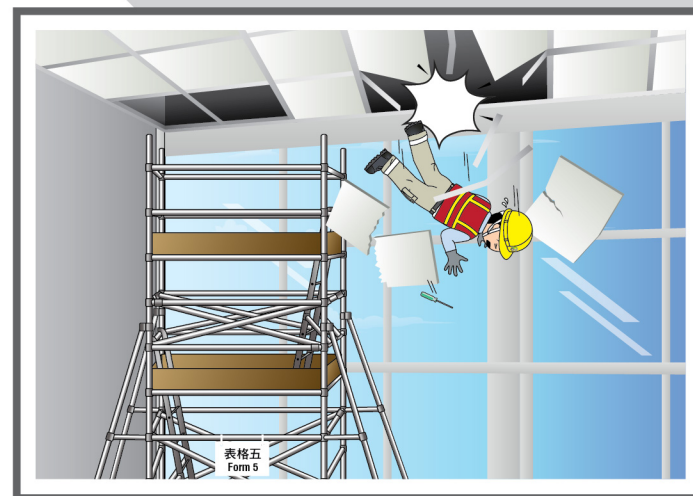
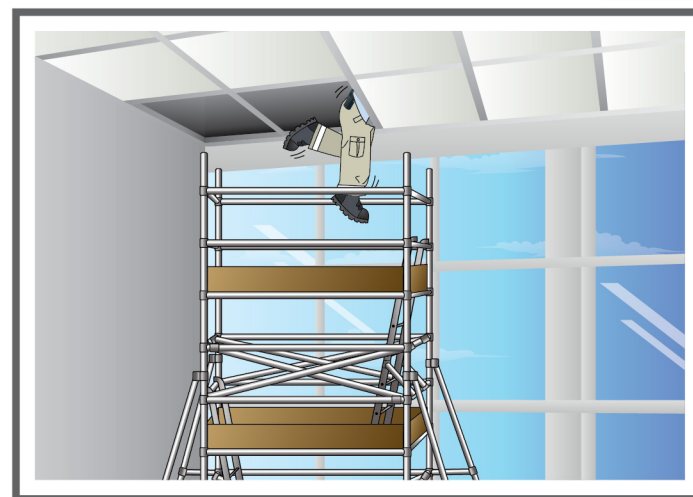


常見的意外

COMMON ACCIDENT

工友使用假天花作為工作平台期間，從高處下墮。

Worker fell from height, when using false ceiling as a working platform.



常見的意外

COMMON ACCIDENT

工友於假天花內工作時，不慎接觸因線路故障而帶電的外露金屬導電部分，導致觸電意外。

Worker received electric shock when touching the live exposed conductive part in carrying out work inside false ceiling.



職安警示(動畫)
Work Safety Alert
(Animation)



工友因踏上天花結構，導致從高處下墜。

Worker fell from height when stepping on the ceiling structure.



職安警示(動畫)
Work Safety Alert
(Animation)



常見的意外

COMMON ACCIDENT

工友在動力操作升降工作台（升降台）上，過份伸展身體進行工作，不慎從高處下墜。

Worker overstretched his body outside the working platform and fell from the platform.



常見的意外

COMMON ACCIDENT

工友沒有跟從生產商的操作指引，將工作台下降至指定位置，引致升降台於行駛期間翻側。

Worker did not follow manufacturer's instruction manual to lower the mobile elevated working platform (MEWP) before moving it leading to overturning of the platform.



工友被行駛中的升降台撞倒。

Worker was struck by a moving mobile elevated working platform.



良好工作事例 - 設計階段

GOOD PRACTICE EXAMPLE - DESIGN STAGE

於工程設計階段詳細考慮合適的安裝的方法，以減低發生意外的風險。

Installation method should be considered in design stage.

用梯台
Using step platform

用升降台
Using mobile elevated working platform

提供全方位合用的工作平台給不同行頭的工友使用
Providing universal working platform for different trade of worker

透過使用DfMA (裝配式建築方法) 減少高空工作
Adopting DfMA (Design for Manufacture Assembly) approach to reduce the need for working at height

透過使用MIC「組裝合成」建築法將工序由地盤轉到廠房內安裝
Adopting MIC (Modular Integrated Construction) to transfer the operation from site to factory

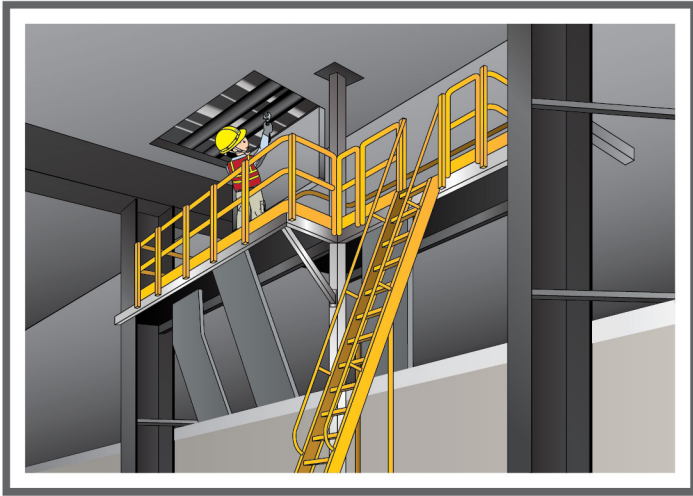
An illustration at the bottom of the design stage section shows five workers in hard hats and safety vests gathered around a table, reviewing architectural plans and documents. One worker is using a laptop.

良好工作事例 - 設計階段

GOOD PRACTICE EXAMPLE - DESIGN STAGE

於設計階段須考慮於日後需要進行的測試及維修工作的安全。

Safety aspects of future testing and maintenance works should be considered in design stage.



於設計階段考慮提供永久的維修工作平台。

Providing permanent working platform for maintenance in design stage.

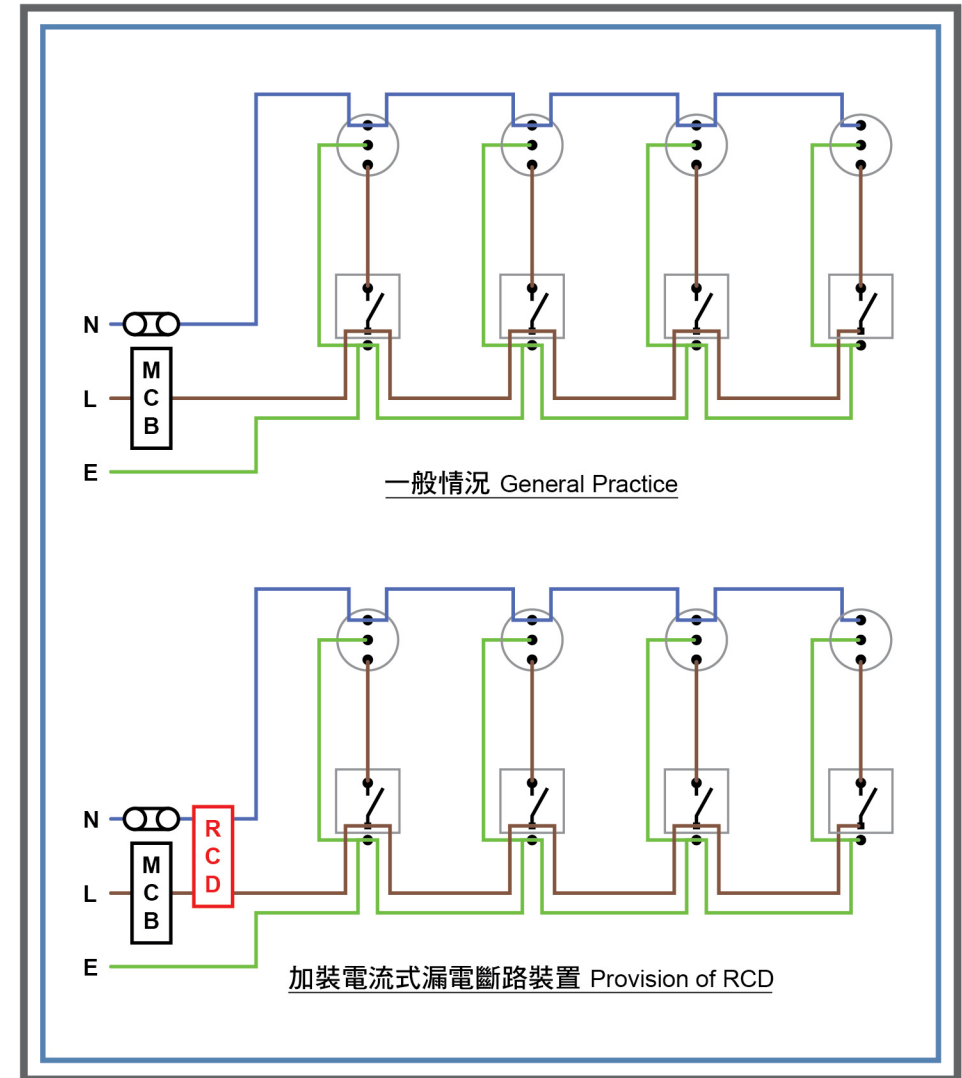


良好工作事例 - 設計階段

GOOD PRACTICE EXAMPLE - DESIGN STAGE

於設計階段考慮於電燈線路安裝電流式漏電斷路裝置，防止因線路故障引起的觸電意外。

Provision of Residual Current Device (RCD) to lighting circuit should be considered in design stage to prevent electric shock due to circuit fault.



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

應妥善安排安裝次序，以確保工友有足夠空間進行安裝。

Installation sequence should be planned to ensure sufficient space for installation.

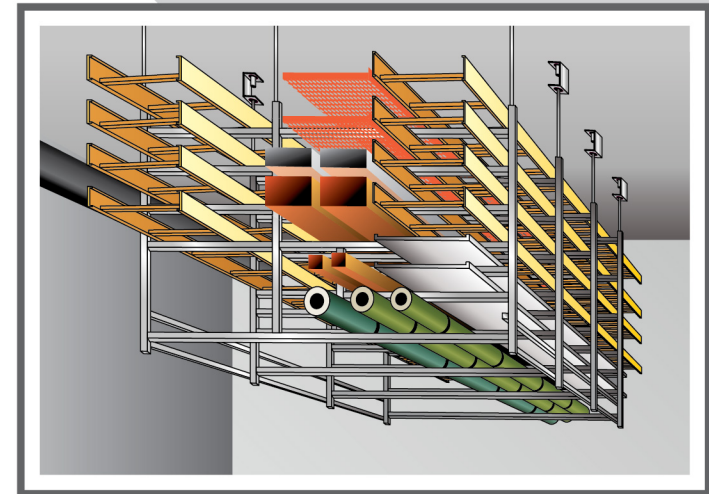
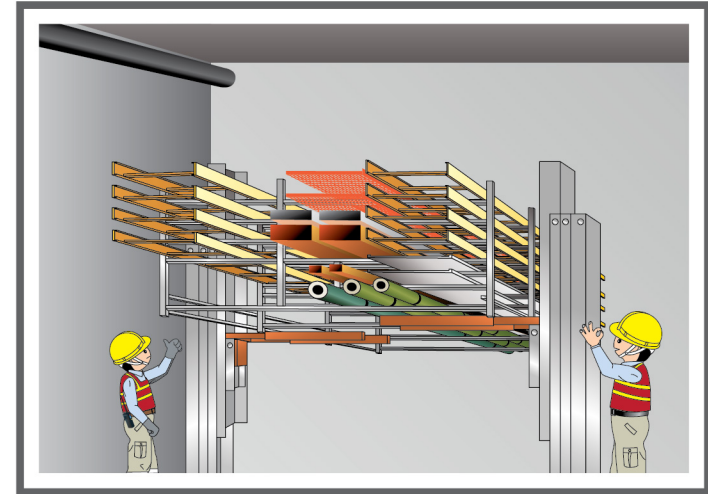


良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

運用裝配式建築方法 (DfMA) 以減少高空工作的需要。

Design for Manufacture and Assembly approach should be used to minimize the need for working at height.



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

所有安裝工作，應安排於未通電的時候進行。

All installation works should be carried out before energization.



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

於假天花內進行安裝工作前，應將附近設施截電、隔離及採用上鎖掛牌措施，並實施工作許可証制度。

All services adjacent to the installation works inside the false ceiling should be shut down and isolated. A lockout tagout system and the application of permit-to-work system should be adopted.



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

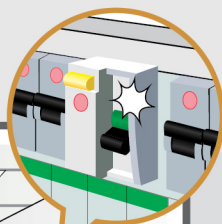
如於設計上未有要求安裝電流式漏電斷路裝置，可於安裝階段加裝電流式漏電斷路裝置，防止工人於測試期間觸電。

Residual Current Device (RCD) should be installed to protect worker from getting electric shock when carrying out testing works if it was not considered in design stage.



沒有電流式漏電斷路裝置的線路發生漏電時，工友有機會觸電。

Without the protection of Residual Current Device (RCD), worker may get electric shock if there is a circuit fault.



電流式漏電斷路器會於線路漏電時啟動，以防止工友觸電。

Residual Current Device (RCD) will be triggered to prevent worker from getting electrical shock if there is a circuit fault.



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

工友於行駛升降台前必須確保：

1. 路線沒有障礙
2. 工作台下降至托架上
3. 在看守員協助下，才可行駛升降台

Before travelling the MEWP, operator must ensure:

1. the path is free from obstruction
2. the working platform is in cradle position for travelling
3. lookout man is engaged in the operation



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

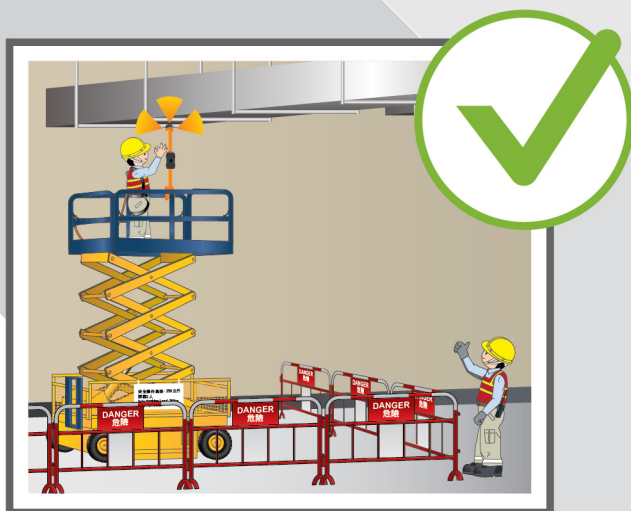
上升或下降升降台前，必須確保周邊沒有任何障礙物，並且沒有任何人士靠近升降台。

Before raising or lowering the MEWP, make sure there are no surrounding obstacles and no one is nearby.



可考慮裝設智能感應器，當升降台靠近頭頂障礙物時，系統會即時發出警號，以保障工人的安全。

Consider to install a smart sensor, when the MEWP is approaching an overhead obstacle, the siren from the system will be activated instantly to safeguard the worker.



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

- 開展敷設電纜工程前，僱主應為工程期間每一項工作活動制定相應的風險控制措施，例如：高空工作的控制措施。
- 向所有前線人員講解有關控制措施，並明確分配各人的安全責任。
- Prior to the commencement of cable laying works, the employer should develop risk control measures in response to each work activity during the works, e.g. control measures for working at height.
- Brief all frontline staff about the control measures and clearly assign individual safety responsibilities.

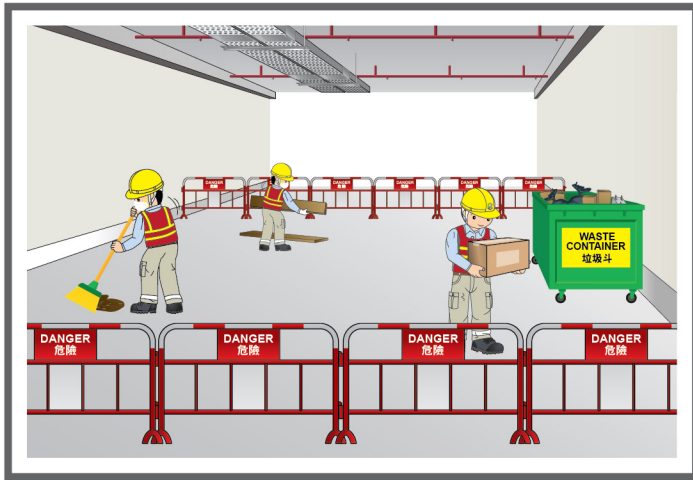


良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

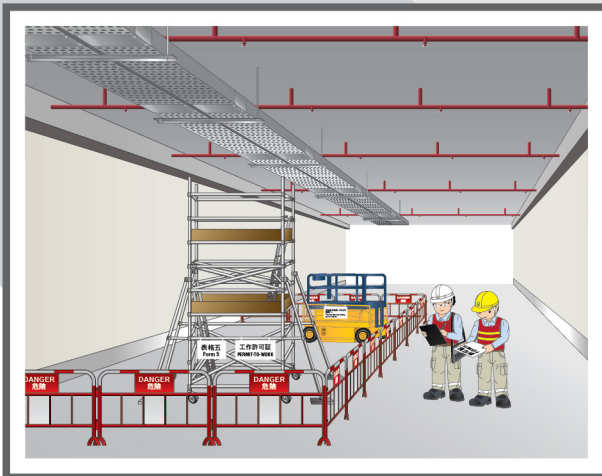
視察施工現場情況以確保適合進行敷設電纜工程，例如：廢料已妥善清理及同一作業範圍內沒有同時進行不兼容的工作。

Conduct site inspection to ensure the location is suitable for cable laying works, for example: the waste is cleaned up properly, and no incompatible work is simultaneously conducted in the same working area.



妥善圍封工程範圍，並展示警告告示，防止未經授權人士進入。

Fence off the working areas properly and display warning notices to ensure no unauthorised entry.

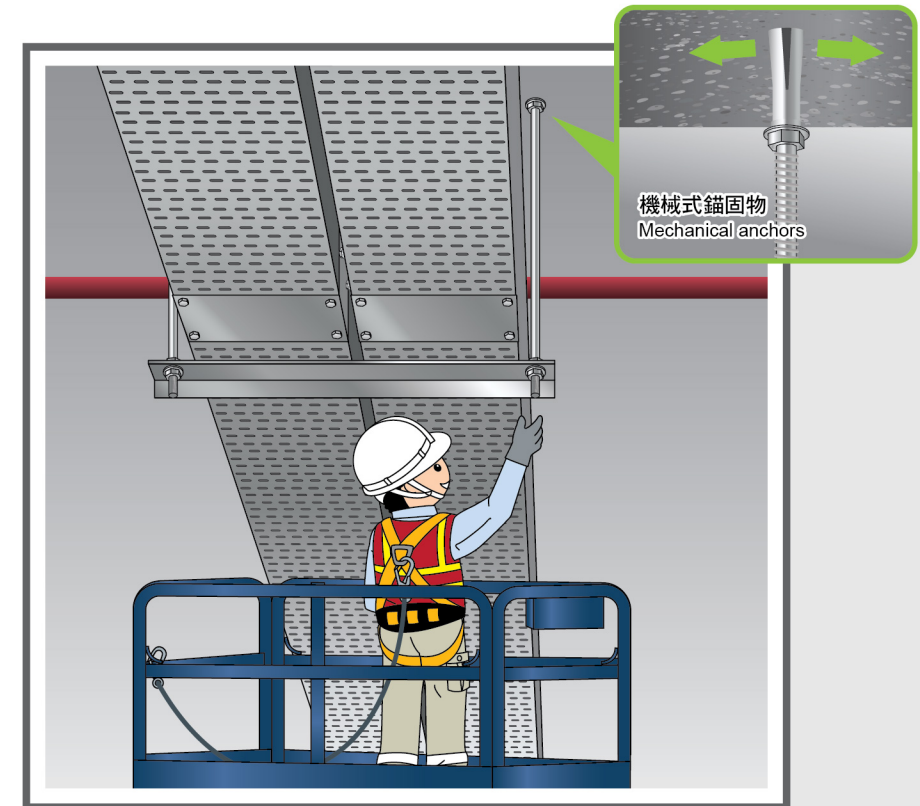


良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

委派合資格人士進行檢查，確保電纜托盆已按照相關設計圖則、物料規格及製造商的指引穩固地安裝（包括所有錨固物和構件）。

Appoint a competent person to carry out inspection to ensure that the cable tray has been securely installed in accordance with the design drawings, material specifications and manufacturer's instruction (including all the anchors and elements).

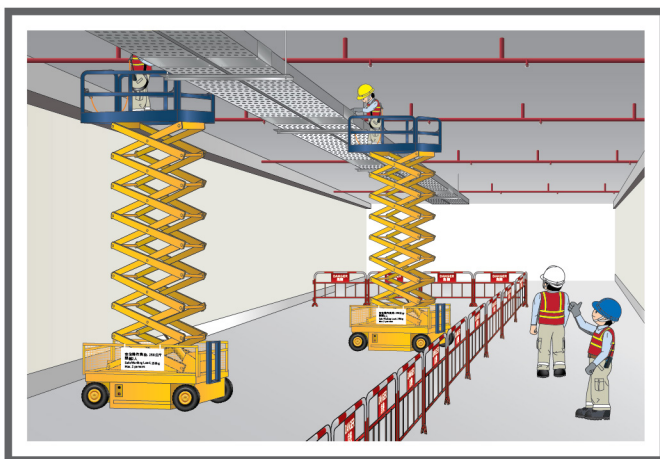


良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

因應現場環境選用合適的工作平台進行高空工作，如升降台、流動工作台、金屬棚架或竹棚架等。儘量安排最少二人為一組工作，並提供通訊設備予相關工作人員。

Based on the working environment, use suitable working platforms for working at height, such as MEWP, mobile working platforms, metal or bamboo scaffolds etc. Arrange at least 2 persons in a working group and provide communication equipment to relevant parties.



若因工作環境而提供合適的工作平台屬不切實可行，須向相關工人提供適當的全身式安全吊帶，並在工作地點設置適當的繫穩點、獨立救生繩或防墮系統，以供他們所配戴的安全吊帶得以持續地繫穩着。

For working environment where it is impracticable to provide suitable working platforms, provide relevant workers with suitable full body safety harnesses and suitable anchor points, independent lifelines or fall arresting systems for continuous attachment of the safety harnesses.



良好工作事例 - 安裝階段

GOOD PRACTICE EXAMPLE - INSTALLATION STAGE

吊環錨栓、絞車及滑輪組等輔助裝置須於首次使用前由合資格檢驗員測試和檢驗及由合資格人士檢查，並須定期進行，以確保裝置處於安全操作狀態。

Ensure assistive plants such as eyebolt anchors, winches and pulley blocks are tested and examined by a competent examiner and inspected by a competent person before putting into use for the first time and regularly to ensure they are in safe working order.



良好工作事例 - 保養維修階段

GOOD PRACTICE EXAMPLE - MAINTENANCE STAGE

僱主應採取措施，以加強工作地點的安全及健康，當中包括提供安全的進出通道、照明、合適的儀器、工具及個人防護裝備。

Employer should contribute safety and health in their workplaces by providing safe access and egress, suitable equipment, tools and personal protective equipment.



良好工作事例 - 保養維修階段

GOOD PRACTICE EXAMPLE - MAINTENANCE STAGE

所有保養維修工作，都不應在帶電情況下進行。

All maintenance works should not be conducted under live condition.

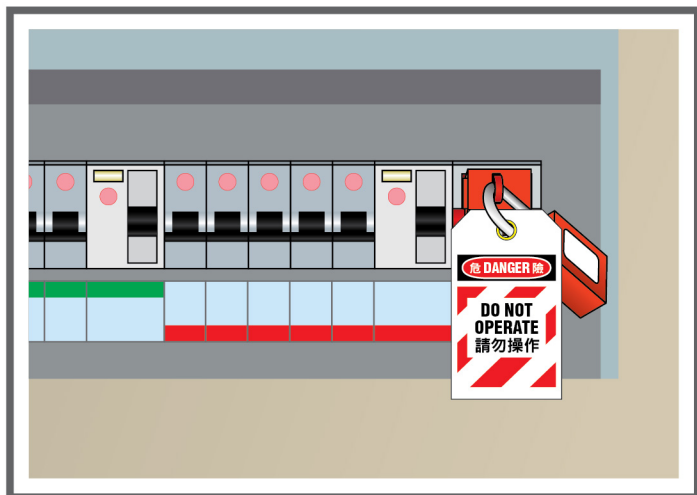


良好工作事例 - 保養維修階段

GOOD PRACTICE EXAMPLE - MAINTENANCE STAGE

進行保養及維修時，必須將該線路截電及隔離，並使用上鎖掛牌制度，才可開始進行工作。

The circuit to be working on for maintenance must be isolated. A lockout tagout (LOTO) system must be applied prior to carrying out the work.



良好工作事例 - 保養維修階段

GOOD PRACTICE EXAMPLE - MAINTENANCE STAGE

建議使用工作許可証制度，以監管於假天花內的保養維修工作。

A permit-to-work system to manage work inside the false ceiling should be applied.



進行工作前，應測試附近外露金屬導電部分是否帶電。

All exposed conductive parts adjacent to the works area must be proved dead before carrying out the work.



良好工作事例 - 保養維修階段

GOOD PRACTICE EXAMPLE - MAINTENANCE STAGE

保養維修工作完成後，在重新接駁電源前，應確保所有工友撤離相關線路。

All workers should be cleared from the circuit before re-energization.



一般安全注意事項

GENERAL SAFETY REQUIREMENT

僱主在分派工作時，必須安排擁有足夠資歷及經驗人士進行。

Employer should assign worker with sufficient ability and experience to carry out the work.



安排工作時，應盡量避免安排一人工作。

In planning out work, the arrangement of one worker working alone should be avoided.



一般安全注意事項

GENERAL SAFETY REQUIREMENT

機械及設備使用前，必須先檢查才可使用。

All plant and equipment should be checked before use.



一般安全注意事項

GENERAL SAFETY REQUIREMENT

僱主應向員工提供合適的工具。

(例如: 無線照明、電工具、絕緣手工具及測試儀器等)

Employer is responsible for providing suitable tools to workers.

(eg. cordless lighting and electric tools, insulated tools, testing instrument, etc.)



一般安全注意事項

GENERAL SAFETY REQUIREMENT

僱主應向員工提供合適的個人防護裝備。

(例如: 附有帽帶的安全帽、眼罩、絕緣手套、安全帶、絕緣安全鞋及絕緣地墊等)

Employer is responsible for providing suitable personal protective equipment to workers.

(e.g. safety helmet with a chin strap, goggles, insulated gloves, safety harness, safety shoes, insulation mat, etc.)



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Labour Department

Hong Kong Housing Authority

Airport Authority Hong Kong

MTR Corporation Ltd

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2. 工廠及工業經營條例 (59章) 及其附屬規例
3. 金屬棚架工作安全守則，勞工處刊物
4. 建築地盤 (安全) 規例VA部有關安全工作地方的條文簡介，勞工處刊物
5. 慎防從高處墮下，勞工處刊物
6. 建築地盤工作安全及健康事項查核表，勞工處刊物
7. 安全帶及其繫穩系統的分類與使用指引，勞工處刊物
8. 安全使用動力操作升降工作台指引，勞工處刊物
9. 高處工作意外致命個案集，勞工處刊物
10. 高處工作安全概覽，勞工處刊物
11. 職安警示 (動畫)，勞工處網頁
12. 工地安全手冊，香港房屋委員會刊物
13. 高空工作實務指南：確保安全作業，香港房屋委員會刊物
14. 離地工作的安全指引，建造業議會刊物

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建造業安全錦囊
Construction Safety App



2024年9月
September 2024