Continuing Professional Development (CPD) Scheme for Registered Electrical Worker (REW)

Module 1 :
Legislative and Safety Requirements

Content

- Integrity Training
- Electricity Ordinance
- Major revisions in the Code of Practices for the Electricity (Wiring) Regulations
- Registration and Maintenance of Generating Facilities
- Registration of Electrical Workers and Electrical Contractors
- Responsibility of Registered Electrical Contractors and Registered Electrical Workers
- Case Study of Electrical Accidents
- Health and Safety for Electrical Works

Integrity Training

- ICAC's Integrity Short Video Series (20) - Is it an offence if corruption purpose is not met? (Cantonese Only):
- https://www.youtube.com/watch?v=FnRhfBrZWIo

- ICAC's Integrity Short Video Series (21) - Is it legal to accept gifts or red packets? (Cantonese Only):
- https://www.youtube.com/watch?v=vPFBt8W-qwE

Integrity Training

Integrity Training

Electricity Ordnance

Cap. 406
Electricity Ordnance

Major Subsidiary Legislation

Electricity (Registration) Regulations

- Registration of Electrical Contractors
- Registration of Electrical Workers
- Registration of Generating Facilities

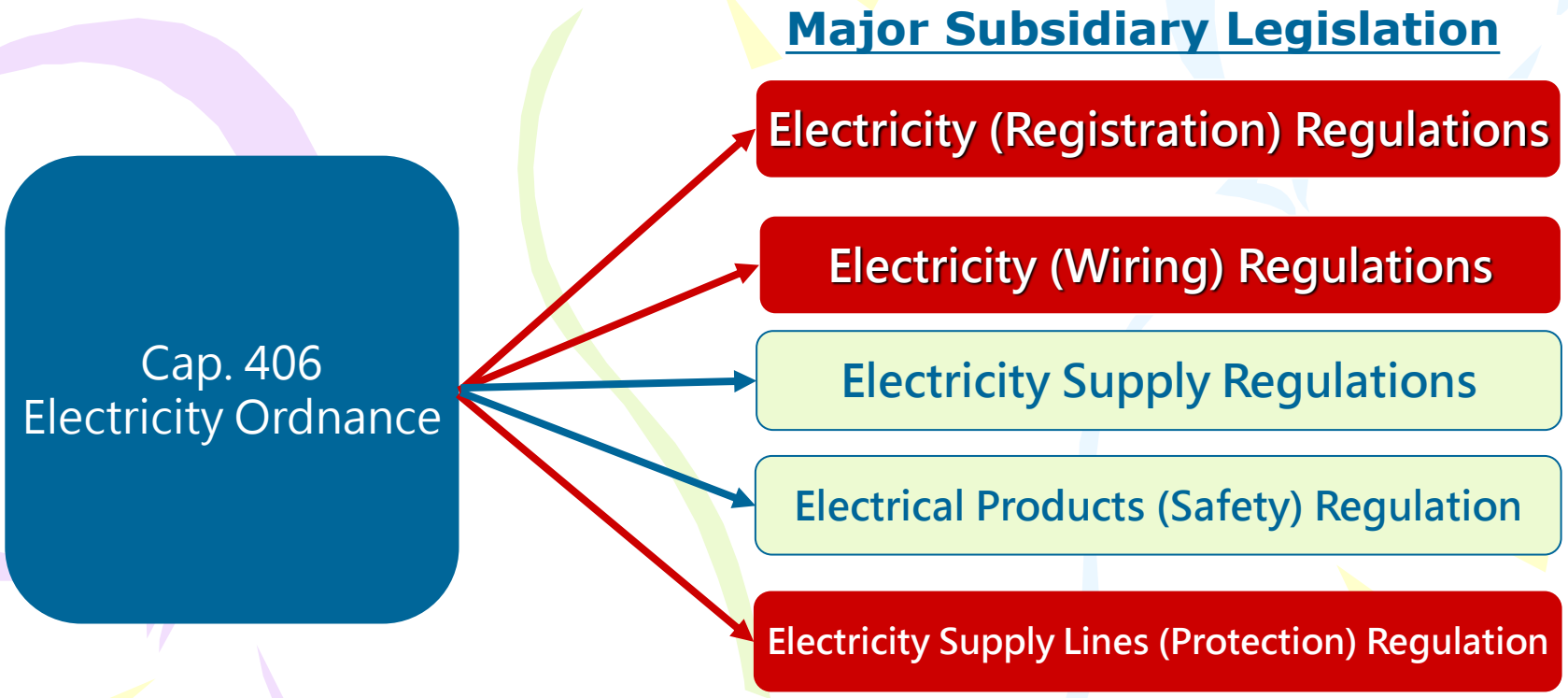
Electricity Ordnance

Cap. 406
Electricity Ordnance

Major Subsidiary Legislation

- Electricity (Registration) Regulations
- Electricity (Wiring) Regulations
  - Technical specification of Electrical Installations
  - Safe working procedures for Electrical Works

Electricity Ordnance



- Installation Works Involving Excavation (E.g. Earth Electrode)

Major revisions in the Code of Practices for the Electricity (Wiring) Regulations

Background

- 'Code of Practice for Electricity (Wiring) Regulation' (hereinafter referred as the 'CoP') provides a general technical guideline for Registered Electrical Contractors and Registered Electrical Workers on how the statutory requirements of the Electricity (Wiring) Regulations can be met.
- EMSD will continue to review the Code of Practice periodically, to up-keep with the latest technology development, safety regulations and industrial practices.

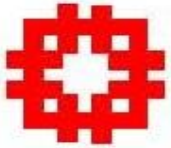
機電工程署 EMSD

Background

- A working group was established in 2019 to collect stakeholders' opinions on the Code of Practice.
- Members of the working group are from the nomination within the Electrical Industries, including 5 industry organizations, 3 professional organizations, 3 academic institutions, 2 power companies, and 6 government departments.
- Works including reviewing latest international safety standards and current practices in the industry, suggesting and discussing reviewing items.

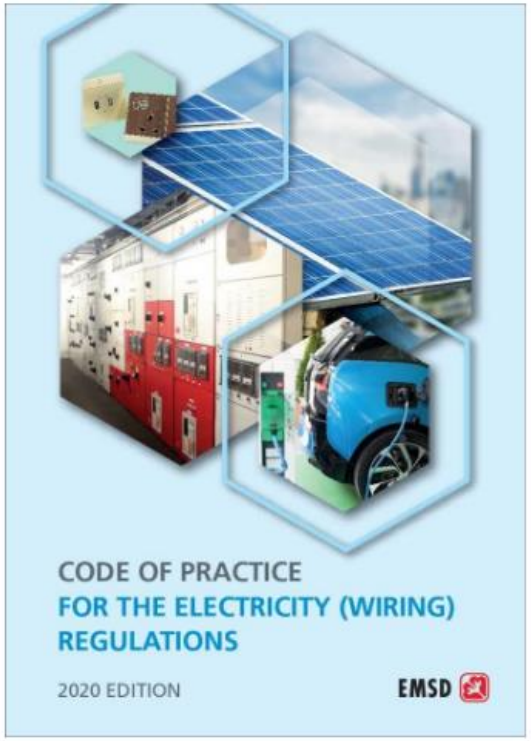




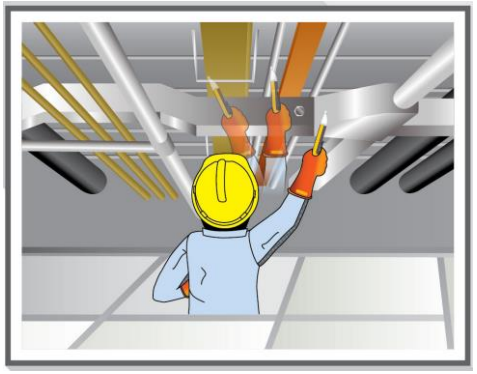

Code of Practice for Electricity (Wiring) Regulations 2020

- New version of Code of Practice was published on 31st December 2020 and full implemented on 31st December 2021.
  - Electrical installations completed and connected to power supply on or after December 31, 2021 must comply with the guidelines of the new version of the Code of Practice.
  - The new code of practice applies to new electrical installations and existing installations undergoing modification, and does not have retrospective effect on existing installations.



Major Revisions

Code 4G (7) Precautions for work inside false ceiling



Purpose :

In view of the many electrical accidents involving working in false ceilings in the past few years, it is recommended to reinforce the control measures for work in false ceiling.

- A task-specific **risk assessment** should be conducted by a competent person assigned by a registered electrical contractor or the owner of fixed electrical installation to identify all potential hazards associated with work inside false ceiling before the commencement of work.
- A registered electrical contractor or the owner of fixed electrical installation should **formulate appropriate method statements with safety procedures and safety measures** for the work in accordance with the relevant risk assessments, and provide necessary safety information, instruction, training and supervision to the persons performing such work to avoid danger.

Major Revisions

Code 4G (7) Precautions for work inside false ceiling

- The scope of work and **circuits of energized electrical installation** at the place of work and in the vicinity of the work area should be identified.
- Suitable **personal protective equipment** and testing equipment should be provided to and properly used by the persons performing the work.
- The **risk of inadvertent contact with live conductors/ live part of energized electrical installation** at the place of work and in the vicinity (within 1.5m) of the work area as well as its access path should be assessed and eliminated.
- Entering into or working on **fragile false ceiling** or similar unsafe places should be strictly prohibited. If access to and working on such places are required, suitable means of access/ means of support/ working platforms should be provided and properly used.
- The work area and its access path should be **suitably lit**.

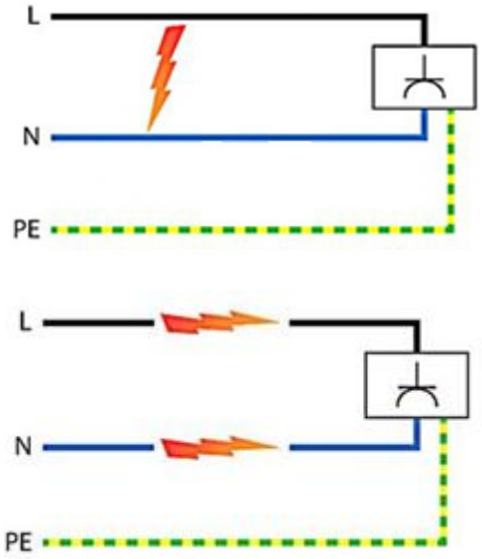
Major Revisions

Code 6B (1) Basic Requirements of Circuits – Arc Fault Detection Devices(AFDD)

Purpose :

As an additional protection against fire due to **arc faults** in the final circuit.

- Arc faults are caused by bad contact or short circuit of Phase conductors and Neutral Conductor. Overcurrent protective device (e.g. MCB) cannot detect the fault since the current under arc **fault will not over normal operating current**.
- Residual Current Device (RCD) could not detect arc fault since there is **no differential current** between the phase conductors and neutral conductors.



Arc Fault Condition
(Bad Contact or Short Circuit of Phase conductors/Neutral Conductors)

機電工程署 EMSD

Major Revisions

Code 6B (1) Basic Requirements of Circuits – Arc Fault Detection Devices(AFDD)

- The arc fault detection device can now detect arc faults more reliably, and further enhance the safety by **complementing** with over-current protection, short-circuit protection and earth leakage protection.
- Arc fault detection devices (AFDDs) complying to **IEC 62606** or equivalent **are recommended**.
- The AFDD shall be installed in distribution board with a dimension similar to typical overcurrent protective devices.
- The AFDD shall be placed at the **origin of the circuit**, if used.

Major Revisions

Code 6B (1) Basic Requirements of Circuits – Arc Fault Detection Devices(AFDD)

- Examples where AFDDs can be used:
  - ✓premises with sleeping accommodation (e.g. dwellings, hotels and guest house);
  - ✓premises for manufacturing or storing of readily combustibles substances , or substance liable to spontaneous combustion;
  - ✓premises for manufacturing or storing of readily combustibles substances , or substance liable to spontaneous combustion;
  - ✓premises where combustible materials are used as the main construction materials (e.g. wooden buildings); and premises with endangering or irreplaceable goods.

Major Revisions

Code 6F Final Circuits Using Universal Serial Bus (USB) Outlets to IEC 60950-1

Purpose :

Electrical products that use USB sockets to charge are becoming more and more common, and USB sockets are also available on the market.

- Should comply with IEC 60950-1 and use in Radial final circuits.
- Overcurrent protection shall be provided on the **primary side** of each USB circuit either as integral parts of equipment or as part of the wiring installation.

Major Revisions

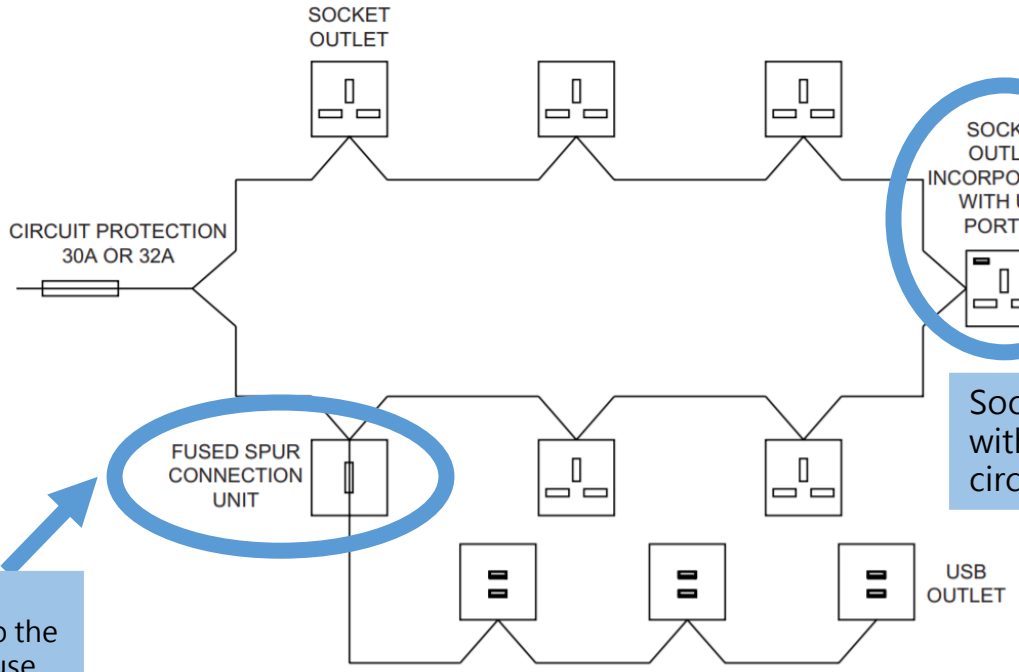
Code 6F Final Circuits Using Universal Serial Bus (USB) Outlets to IEC 60950-1

- Apart from final circuits of 13A socket outlets, USB circuits should be electrically separated from other power circuits.

- The 13A socket with USB circuit shall comply with the relevant regulations of the 2016 edition of **BS 1363** Part 2 or the latest edition.

Major Revisions

Code 6F Figure 6(4) Circuit arrangement for final USB circuits



(B) FED FROM FINAL CIRCUIT OF 13A SOCKET OUTLET

Socket outlet incorporated with USB Port could form ring circuit with 13A socket outlet

The USB socket branch pulse circuit should be connected to the circuit via a **fuse spur** with a fuse inside. The rated current carrying capacity of the fuse should comply with the **manufacturer's recommendations** and should not exceed 13 amperes under any circumstances.

機電工程署 EMSD

Major Revisions

Code 8A (8) Provision of Isolation and Switching - Direct Current (DC) System
Code 13D (2) Identification of cable cores

Purpose :

To incorporate with the renewable energy power system and charging facilities for electric vehicles, provision of isolation facilities and identification requirements for direct current system are added to existing Code 8A and Code 13D.

- All conductors of a DC circuit shall be capable of being **isolated by a device for isolation** except the conductor connected either to earth or to a protective earthing conductor.
- Every cable core of a flexible cable or cord for use in a DC circuit should have its **positive conductor coloured brown and negative conductor coloured grey.**

Table 13(2)

Identification of Non-flexible Cables and Bare Conductors for Fixed Wiring

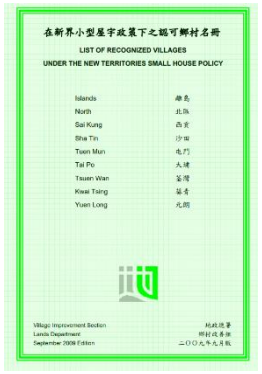
Function	Colour Code		
	Old Colour	New Colour	Coding
a) For AC installation			
Phase of single phase circuit	Red (or Yellow or White or Blue)	Brown	L
Phase 1 of 3-phase circuit	Red	Brown	L1
Phase 2 of 3-phase circuit	Yellow (or White)	Black	L2
Phase 3 of 3-phase circuit	Blue	Grey	L3
Neutral	Black	Blue	N
Protective conductor	Green-and-yellow	Green-and-yellow	—
b) For DC installation (Two-wire unearthed DC power circuit)			
Function		Colour Code	Coding
Positive of two-wire circuit (unearthed)		Brown	L+
Negative of two-wire circuit (unearthed)		Grey	L-
c) For DC installation (Two-wire earthed DC power circuit)			
Positive (of negative earthed) circuit		Brown	L+
Negative (of negative earthed) circuit		Blue	M
Positive (of positive earthed) circuit		Blue	M
Negative (of positive earthed) circuit		Grey	L-

Major Revisions

Code 11J (1) Use of residual current device (RCD) for electrical installations in village premises

Purpose :

In view of the number of electrical accidents involving the electrical installations of village houses in the past few years, increase of electricity safety requirements are recommended.


在新界小型屋宇政策下之認可鄉村名冊

LIST OF RECOGNIZED VILLAGES
UNDER THE NEW TERRITORIES SMALL HOUSE POLICY

Islands	離島
North	北區
Sai Kung	西貢
Sha Tin	沙田
Tuen Mun	屯門
Tai Po	大埔
Tsuen Wan	荃灣
Kwai Tsing	葵青
Yuen Long	元朗

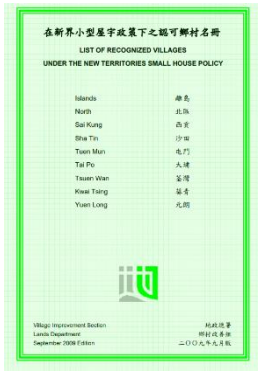
Village Improvement Section
Lands Department
September 2008 Edition

- Electrical installations in premises under the "List of Recognized Villages under the New Territories Small House Policy" should be protected by **current type residual circuit breaker.**

Major Revisions

Code 11J (1) Use of residual current device (RCD) for electrical installations in village premises

- Installed in pre-metered main switch or main switchboard will be acceptable.
- Approved “Village Environs Plan "will be available in Survey and Mapping Office (SMO) sales counters.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Yuen Long	元朗

Village Improvement Section
Lands Department
September 2008 Edition

機電工程署 EMSD

Major Revisions

Code 26P Renewable Energy Power System

Purpose :

In view of the widespread of the technology and applications of REPS, Code 26P Renewable Energy Power System are being reviewed.

- Selection and erection of installation, e.g. PV systems and small-scale wind power generators.
- Protection for safety, e.g. Protection against overload on the DC side and Fault protection.
- Inspection, Testing, and Maintenance Requirements, e.g. Anti-Islanding Function, Notices and System Schematics.
- The requirements stated in the **checklist for inspection and testing of REPS installations** of Code 22 should be followed.

Checklist No. 3— Items for Renewable Energy Power System (REPS) Installations

Installation Address: _____

		Tested by/Date (N/A if not applicable)
(a) Power Generating Equipment		
(i)	The solar PV panels are certified by the recognised national/international organisations or relevant testing and certification authorities complying with relevant safety standards such as IEC 61215, BS EN 61215, IEC 61730, UL 1703 or equivalent.	
(ii)	Other renewable energy power generating equipment (e.g. wind turbine) complies with relevant international design/safety standards.	
(b) Inverter		
(i)	Anti-islanding function incorporated (with tripping time as required by the Electricity Supplier).	
(ii)	Synchronisation check function incorporated (to ensure that connection of the inverter to the distribution system will only take place when the inverter output and the distribution system are operating in synchronism).	

Major Revisions

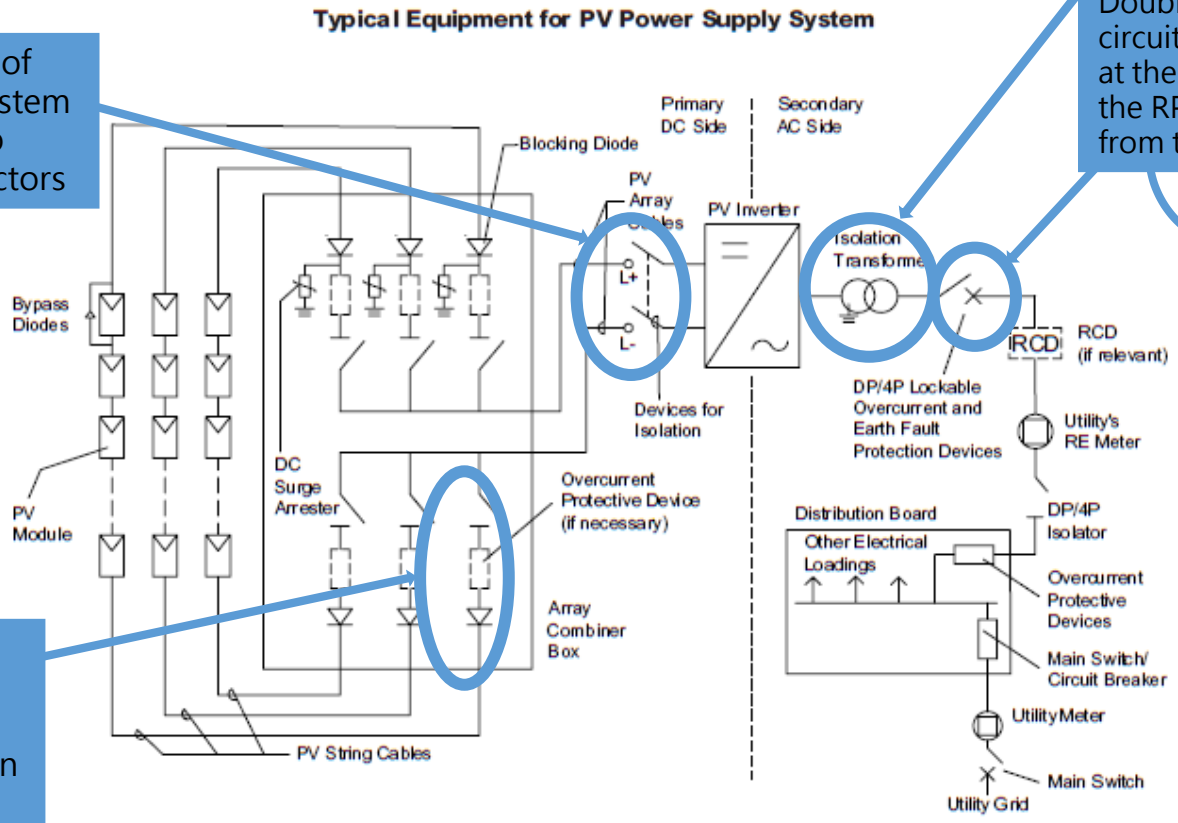
Code 26P Renewable Energy Power System

Isolating direct current system and alternating current system

Double-pole / Four-pole lockable circuit breaker should be installed at the point of isolation to ensure the RPES could be fully isolated from the distribution system

Isolating equipment of direct current (DC)system should be capable to isolate all the conductors

Direct current overcurrent protection device should be installed in the DC side (unless Code 26P(3)(b)(ii) and (iii) are fulfilled)



Code 26 Figure 26(7)

Major Revisions

Code 26S Charging Facilities for Electric Vehicles

Purpose :

In view of the widespread of charging facilities for Electric Vehicles, existing Code 26S (Charging Facilities for Electric Vehicles) are being reviewed.

- The EV charging installation should be designed and installed in accordance with **IEC 61851** or equivalent.
- Each final circuit of EV charging facility shall be installed as a **separate radial circuit** of the fixed electrical installation.
- **Diversity** may be allowed for a dedicated distribution circuit supplying multiple electric vehicle charging points if **load control** is available.

Major Revisions

Code 26S Charging Facilities for Electric Vehicles

- Means of **isolating the EV charging equipment** circuit shall be provided. This isolating device shall be located in a position that is readily accessible for maintenance purposes and shall be suitably identified by marking and/or labelling.
- Except for circuits using the protective measure of electrical separation, each charging point shall be protected by its own **RCD of at least Type A**, having the characteristic specified in Code 11J.

機電工程署 EMSD

Major Revisions

Code 26S Charging Facilities for Electric Vehicles

- **Each charging point incorporating a socket outlet or connector complying with the IEC 62196 series**, protective measures against DC fault current shall be taken, except where provided by the EV charging equipment. The appropriate measures, for each connection point, shall be as follows:
  - **RCD Type B**; or
  - RCD Type A and appropriate equipment that provides disconnection of the supply in case of **DC fault current above 6mA**.

機電工程署 EMSD

Major Revisions

Code 26T Installation for Modular Integrated Construction

Purpose :

As the technology and application of the Modular Integrated Construction (MiC) are becoming more and more mature, new regulations have been added for the use of MiC for the design and construction of fixed electrical installations.

- When a **registered electrical worker** is employed to carry out the **design of fixed electrical installation** including the wiring installation with MiC method, a registered electrical worker employed by this registered electrical contractor shall certify the design of fixed electrical installation and this registered electrical contractor shall **endorse the certificate** (**i.e. Part 1 of Work Completion Certificate**).

Major Revisions

Code 26T Installation for Modular Integrated Construction

- for carrying out **electrical installation work** at premises, the fixed electrical installation shall, after completion (including any work completed after repair, alteration or addition) and before it is energized for use, be inspected, tested and certified by a **registered electrical worker** of this registered electrical contractor and this registered electrical contractor shall **endorse the certificate** (**i.e. Part 2 of Work Completion Certificate**) to confirm that the fixed electrical installation complies with the requirements of the Electricity Ordinance and is in safe working order.

Major Revisions

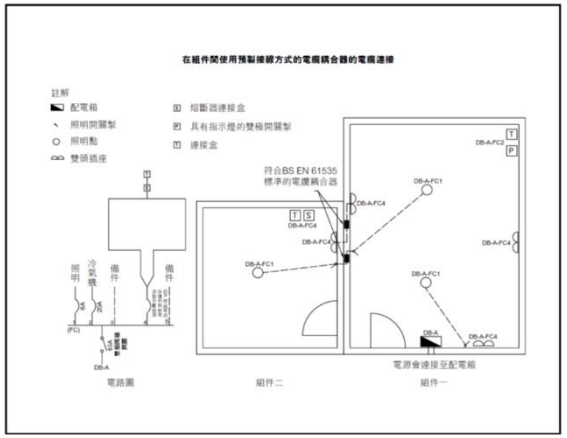
Code 26T Installation for Modular Integrated Construction

- For part of the electrical installations being constructed and installed in modules at the off-site workshops (e.g. factories outside Hong Kong), these parts of electrical installations could be regarded as a MiC electrical assembly and should be **inspected and tested to the satisfaction of the registered electrical contractor before delivery to the site for permanent module fixing**.

Major Revisions

Code 26T Installation for Modular Integrated Construction

- This registered electrical contractor is recommended to establish or agree with the factory to implement a **quality control and supervision system** including the factory test requirements (e.g. the items listed in Code 21B) to ensure the MiC electrical assembly being constructed and installed at the off-site workshop with good workmanship and quality.
- Wiring installation in buildings/ developments with MiC method can be generally, but not exhaustively, classified into **4 types** of Requirements on prefabricated wiring systems. Figure 26(8)-(11) are **simplified diagram** for reference.



機電工程署 EMSD

Major Revisions

Code 26T Installation for Modular Integrated Construction

Regulations regarding **prefabricated wiring system**:

- The **prefabricated wiring system** is selected and is intended for permanent connection in fixed electrical installation of the buildings/ developments shall comply with **BS 8488** or equivalent.
- The **prefabricated wiring system** shall incorporate cable couplers that conform to **IEC 61535** or equivalent. The cable couplers shall be distinctively labeled to facilitate electrical circuit checking
- The prefabricated wiring system shall be installed by **registered electrical workers or skilled persons under the instruction of registered electrical worker**, including the connection and disconnection of cable couplers.

Major Revisions

Code 22D / Appendix 13 Checklist

CoP 2015

Requirements	*Checklists to be Used*
(*a*) Periodic inspection and testing for a low voltage installation which was connected to supply:	
(i) before 1.1.1985	1
(ii) on or after 1.1.1985 and before 1.6.1992	1 and 2
(iii) on or after 1.6.1992	1, 2 and 3
(*b*) Inspection and testing carried out upon completion of any electrical work for a low voltage installation	1, 2, 3 and 4

CoP 2020

Requirements	Checklists to be Used
(a) Periodic inspection and testing for a low voltage installation **(E.g. WR2)**	1
(b) Inspection and testing carried out upon completion of any electrical work for a low voltage installation **(E.g. WR1)**	1 and 2
(c) Inspection and testing for Renewable Energy Power System Installations	3

Categorized by **Year** → Categorized by types **of Electrical Works or type of installations**

Major Revisions

Code 22D / Appendix 13 Checklist

- Checklists for **typical low-voltage electrical installations** and **Renewables Energy Power System** can be downloaded from the designated website of EMSD for easy referencing and uses.

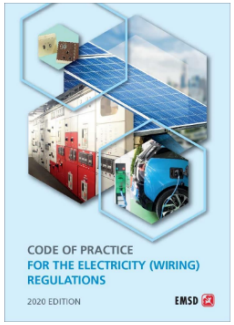
New Edition of Code of Practice

New Edition of the Code of Practice for the Electricity (Wiring) Regulations

Code of Practice for the Electricity (Wiring) Regulations (2020 Edition)

[PDF format (2.74MB)]

The new edition of the Code of Practice for the Electricity (Wiring) Regulations has been published. This new edition will be fully implemented on 31 December 2021 to replace the 2015 edition, after a grace period of one year. During this grace period, compliance with 2015 edition of this Code of Practice should be regarded as compliance with the relevant aspects of the Electricity (Wiring) Regulations.

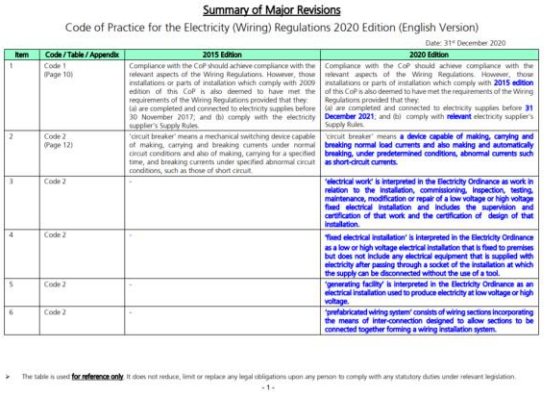


- Summary of Major Revisions
  [PDF format (3.62MB)]
- **Appendix 13B - Checklists**
  - **Low Voltage (LV) Installation**
    - Items For New LV Installation or Items For Periodic Testing of LV Installations [PDF format (140KB)]
    - Additional Items For New LV Installation [PDF format (50KB)]
  - **Renewable Energy Power System (REPS) Installation**
    - Items for Renewable Energy Power System (REPS) Installations [PDF format (64KB)]

機電工程署 EMSD

Other Revisions for New Version of Code of Practice

- **Summary of Major Revisions** of New Version of CoP is uploaded to EMSD website for reference.
  - 中文版(https://www.emsd.gov.hk/filemanager/tc/content_443/Summary_of_Major_Revisions.pdf)
  - 英文版(https://www.emsd.gov.hk/filemanager/en/content_443/Summary_of_Major_Revisions.pdf)


Summary of Major Revisions

Code of Practice for the Electricity (Wiring) Regulations 2020 Edition (English Version)

Date: 31st December 2020

Item	Code / Table / Appendix	2015 Edition	2020 Edition
1	Code 1 (Page 10)	Compliance with the CoP should achieve compliance with the relevant aspects of the Wiring Regulations. However, those installations or parts of installation which comply with 2009 edition of this CoP is also deemed to have met the requirements of the Wiring Regulations provided that they: (a) are completed and connected to electricity supplies before 30 November 2017; and (b) comply with the electricity supplier's Supply Rules.	Compliance with the CoP should achieve compliance with the relevant aspects of the Wiring Regulations. However, those installations or parts of installation which comply with **2015 edition** of this CoP is also deemed to have met the requirements of the Wiring Regulations provided that they: (a) are completed and connected to electricity supplies before **31 December 2021**; and (b) comply with **relevant** electricity supplier's Supply Rules.
2	Code 2 (Page 12)	"circuit breaker" means a mechanical switching device capable of making, carrying and breaking currents under normal circuit conditions and also of making, carrying for a specified time, and breaking currents under specified abnormal circuit conditions, such as those of short circuit.	"circuit breaker" means **a device capable of making, carrying and breaking normal load currents and also making and automatically breaking, under predetermined conditions, abnormal currents such as short-circuit currents.**
3	Code 2	-	**"electrical work" is interpreted in the Electricity Ordinance as work in relation to the installation, commissioning, inspection, testing, maintenance, modification or repair of a low voltage or high voltage fixed electrical installation and includes the supervision and certification of that work and the certification of design of that installation.**
4	Code 2	-	**"fixed electrical installation" is interpreted in the Electricity Ordinance as a low or high voltage electrical installation that is fixed to premises but does not include any electrical equipment that is supplied with electricity after passing through a socket of the installation at which the supply can be disconnected without the use of a tool.**
5	Code 2	-	**"generating facility" is interpreted in the Electricity Ordinance as an electrical installation used to produce electricity at low voltage or high voltage.**
6	Code 2	-	**"prefabricated wiring system" consists of wiring sections incorporating the means of inter-connection designed to allow sections to be connected together forming a wiring installation system.**

The table is used **for reference only**. It does not reduce, limit or replace any legal obligations upon any person to comply with any statutory duties under relevant legislation.

- 1 -

Registration of Generating Facilities

Registration of Generating Facilities

According to Section 21(1) of Electricity Ordinance, the owner of a generating facility that is in use or on standby use shall register it with the Director unless it—

1. is used on an aircraft;
2. is used on a watercraft;
3. is used on a hovercraft;
4. is on a land vehicle where the facility is not connected to a wiring installation outside the vehicle;
5. is used in construction work as defined and regulated under the Factories and Industrial Undertakings Ordinance (Cap. 59);
6. forms part of an electrical installation that requires a periodic test certificate to be submitted to the Director under this Ordinance; or
7. only supplies electricity to an electrical installation that is owned by the owner of the generating facility.

Registration of Generating Facilities

Example：

General village houses or building flats

◆Equipped with Renewable Energy Power System (REPS) and connected to power grid

- ❑With power supply to the third parties (Power Company)

◆Approved loading of electrical installation below 100A

- ❑Not part of an electrical installation that requires a Period Test Certificate (WR2)

Owners of REPS is required to register their system to Director of Electrical and Mechanical Services

A person who contravenes the above section is liable to a fine of HK$10,000

Registration of Generating Facilities

Method of Applications :

Section 14 of Electricity (Registration) Regulations(Cap. 406D)

An owner who applies to register a generating facility shall submit to the Director—

1. an application in a form required by the Director (GF1)
2. documents that the Director considers are relevant to the applicant's registration
3. the application fee of HK$640.

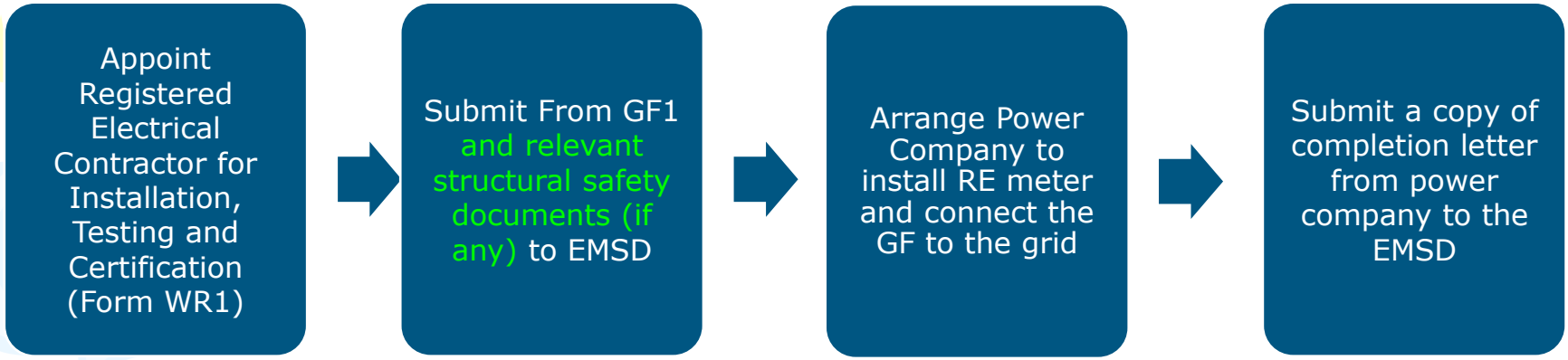
※Renewal is not required once the generating facilities are registered successfully※

Where any of the particulars provided on the form referred to regulation 14 change, the owner shall notify the Director within 4 weeks after the change.

Registration of Generating Facilities

Updated GF Registration Process Implemented since 14th June 2024

(1) For those applicants who participated in FiT Scheme on or before 31st December 2023



(2) For those applicants who participated in FiT Scheme on or after 1st January 2024

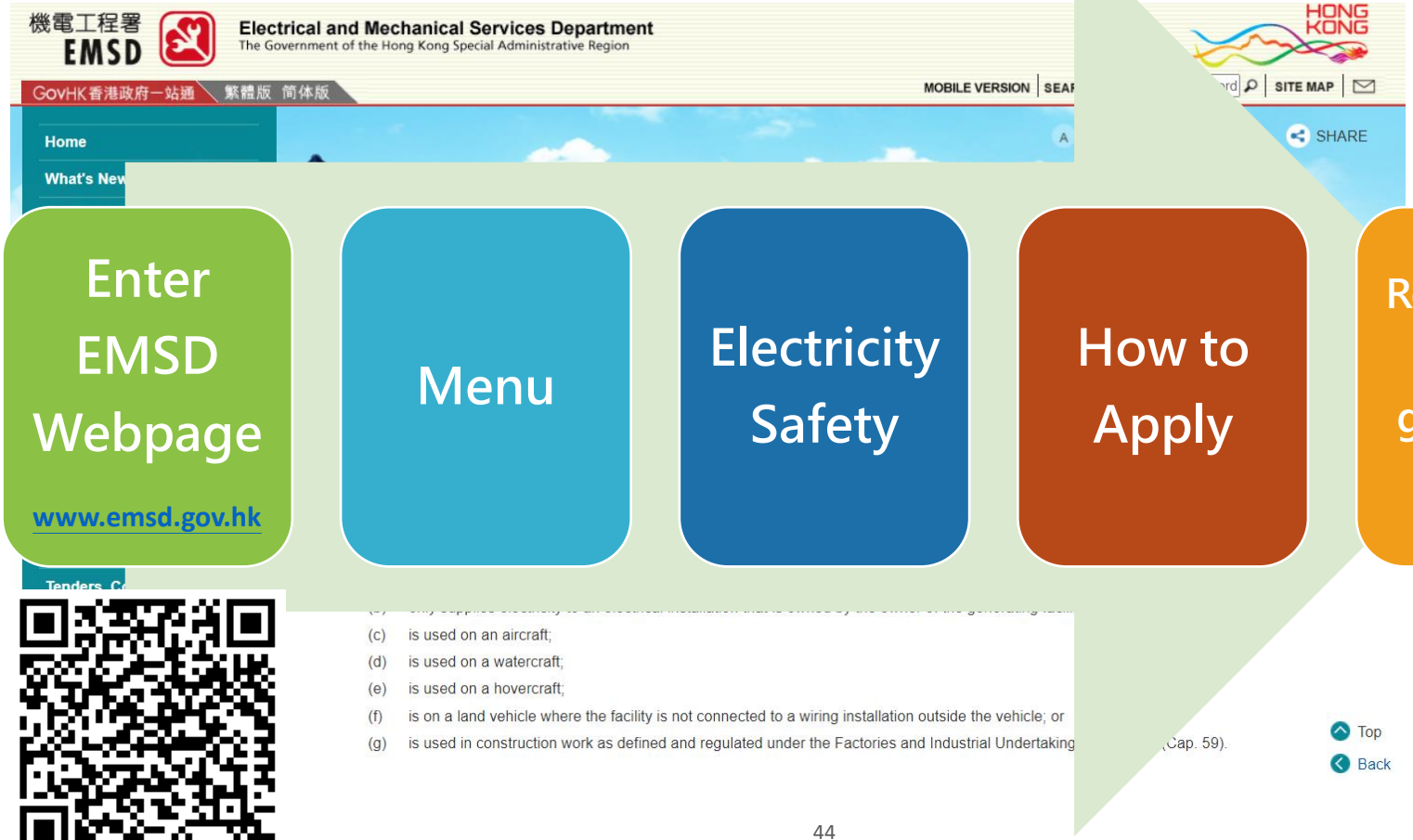
Registration of Generating Facilities

Collection of application forms and Method of Submission：

1. Obtain appropriate application form(s) from:
   a) Registration and Permit Office, EMSD, G/F, 3 Kai Shing Street, Kowloon, Hong Kong;
   b) Telephone hotline: 1823 (for a fax copy);
   c) Government Forms web site: Government Form Catalogue; or
   d) EMSD website: www.emsd.gov.hk (select "Public Forms")
2. Complete the application form(s) according to the given instructions.
3. Submit the completed application form(s) together with supporting documents and an application fee in person or by mail to Registration and Permit Office (RPO), EMSD. The registration of generating facility can also be applied online through "EMSD (Regulatory Services) Web Based Registration Services" and "iAM Smart+" by mobile phone or computer.

Registration of Generating Facilities

Registration Details：



機電工程署
EMSD
44

Registration of Generating Facilities

Form GF1

機電工程署
EMSD

表格 GF1
香港特別行政區政府
電力條例(第 406 章)
電力(註冊)規例
新申請為註冊發電設施

FORM GF1
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
ELECTRICITY ORDINANCE (CAP 406)
ELECTRICITY (REGISTRATION) REGULATIONS
NEW APPLICATION FOR REGISTRATION AS GENERATING FACILITIES

此欄不用填寫
For Official use only
收件日期：
Receipt date:
收據編號：
Receipt Number:

(注意：填寫此申請表格前請參閱「表格 GF1 備註」。申請人(即發電設施擁有人)應以正楷填寫此申請表格各欄，並簽在表格上簽署。)
(Note: Before you complete this form, please read carefully the notes on "NOTES TO FORM GF1". The applicant (i.e. the owner of the generating facility) should complete all sections of this application form in black letters and sign the form.)

致 機電工程署署長：
To the Director of Electrical & Mechanical Services,

A 部：一般資料
Section A: General Information

(1) 發電設施所在地址：
Address of the Generating Facility:

(2) 發電設施擁有人的姓名或公司名稱：
Name or Organization of the Owner of the Generating Facility:

(3) 發電設施擁有人香港身份證號碼或公司商業登記號碼：
HKID Number or Business Registration Certificate Number of the Owner of the Generating Facility:

(4) 發電設施擁有人的聯絡地址(如與發電設施所在地址不同)：
Correspondence Address of the Owner of the Generating Facility
(if different from address of the generating facility):

(5) 發電設施是否屬於《電力(線路)規例》(第 406E 章)第 20 條規定須向署長提交定期測試證明書的電力裝置的一部分？(是 / 否) 如是，則不用提交申請：
Does the Generating Facility form part of an electrical installation that requires a periodic test certificate to be submitted to the Director under Regulation 20 of the Electricity (Wiring) Regulations? (Y/N) If yes, no application is required:

(6) 聯絡電話：
Contact Tel. No.:

電郵地址：
Email Address:

(7) 電力公司可再生能源上網電價計劃申請編號：
Power Supply Company Renewable Energy Feed-in Tariff (FiT) Scheme Application No.:

(8) 電力公司帳戶號碼：
Power Supply Company Account Number:

電力公司供電電錶編號：
Power Supply Company Supply Meter Number:

EMSD/E/GF1 (06/2024)

(9) 電力公司帳戶持有人姓名：
Name of the Power Supply Company Account Holder:

與發電設施擁有人的關係(如發電設施擁有人並不是電力公司帳戶持有人)*：
Relationship between the Owner of the Generating Facility (if the Owner of the Generating Facility is not the Power Supply Company Account Holder)*:

(* 如有需要，申請人須提交相關文件以核實其發電設施擁有人的身份。
The applicant should provide relevant documents for verification of his/her identity of the Owner of the Generating Facility if needed.)

(10) 負責使發電設施保持運作安全的註冊電業承辦商名稱及註冊號碼#：
Name and Registration Number of the Registered Electrical Contractor responsible for Maintaining the Generating Facility in Safe Working Order#:

(# 根據《電力條例》(第 406 章)第 22 條，註冊發電設施的擁有人必須使其發電設施經常保持運作安全及在該發電設施所在處展示告示，列明為使發電設施經常保持運作安全而僱用的註冊電業承辦商的名稱及註冊號碼。
In accordance with section 22 of the Electricity Ordinance, the owner of registered generating facility shall maintain the facility in continuous safe working order, and display at the facility a notice showing the name and registered number of the registered electrical contractor employed for maintaining the facility in continuous safe working order.)

B 部：技術資料 (如有需要，可向相關負責安裝或維修發電設施的註冊電業承辦商查詢)
Section B : Technical Information (if needed, please seek advice from the registered electrical contractor responsible for installing or maintaining the generating facility)

(1) 發電設施類型 (例如：光伏技術、風能、柴油發動機或混合式等)(請說明)：
Type of Generating Facility (e.g. photovoltaic, wind, diesel engine or hybrid, etc. (please specify)):

(2) 總額定功率(千瓦)：
Aggregated Power Rating (kW):

輸出電壓 [伏特] 及 電流 [安培]：(單相 / 三相)
Electricity Output Voltage[V] and Current [A] : (single-phase / three-phase)

(3) 預計每年產生的電量(千瓦小時)：
Expected Annual Generation (kWh)

(4) 發電設施的最大開關器件為：_____ 安培
Largest Switching Device of the Generating Facility: _____amperes

EMSD/E/GF1 (06/2024)

C 部：隨申請書附上作為證明的文件影印本 (請在適當位置加上✓號)
Section C: Photocopies of Documents submitted in support of this application (Please tick as appropriate)
(附註：申請人須於以下(a)部分勾選一個選項，否則該申請將不會受理。
Note: The applicant shall complete the following part (a) by ticking one box, otherwise this application will not be accepted.)

(a) 發電設施擁有人香港身份證或商業登記證書
HKID or Business Registration Certificate of the owner of the generating facility

(b) 電力公司文件包括電費單、可再生能源上網電價計劃申請確認書及完成通知書^
Documents issued by the power supply company including Electricity Bill, Renewable Energy Feed-in Tariff (FiT) Scheme Acknowledge Letter and Completion Letter^

(^如申請人於 2023 年 12 月 31 日或之前參與「可再生能源上網電價」計劃，申請人便須提交完成通知書以完成註冊程序。
The applicant, who participated in FiT Scheme on or before 31.12.2023, shall submit the Completion Letter in order to complete the registration.)

(c) 該發電設施根據《電力(線路)規例》的完工證明書(表格 WR1)，有關(WR1)必須顯示與電網接駁及相關電錶、供電位置詳情的配電系統單線電氣圖及供電電錶的開關器件
Work completion certificate (Form WR1) under Electricity (Wiring) Regulations for the generating facility. The WR1 shall complete with single-line electrical diagrams of the distribution system showing details of the grid connection, the associated metering points/supply points and switching device of supply meter

(d) 負責使該發電設施保持運作安全的註冊電業承辦商的註冊證書
Certificate of the registered electrical contractor responsible for maintaining the generating facility in safe working order

(e) 發電設施的支承構築物的結構安全文件
Structural safety document for the supporting structure of the generating facility

i) 由屋宇署 / 除關房屋局常任秘書長辦公室的獨立審查組發出就有關小型工程完工證明的認收信
Acknowledgement letter for certification on completion of relevant minor works issued by Buildings Department / Independent Checking Unit under the Office of the Permanent Secretary for Housing

ii) 由屋宇署 / 除關房屋局常任秘書長辦公室的獨立審查組發出就有關改動及加建工程竣工證明的認收信
Acknowledgement letter for certification on completion of relevant alteration and addition works issued by Buildings Department / Independent Checking Unit under the Office of the Permanent Secretary for Housing

iii) 已向地政總署遞交的新界豁免管制屋宇屋頂 / 樓梯頂蓋裝設的光伏系統安全證明書
Safety Certificate of Photovoltaic System Installed on Roof / Roof of Stairhood of New Territories Exempted House submitted to Lands Department

iv) 不適用，由於該發電設施裝設於新界豁免管制屋宇的屋頂及右關系統的高度(由天台地台起計)不超過 1.5 米高，因此毋須向地政總署遞交新界豁免管制屋宇屋頂 / 樓梯頂蓋裝設的光伏系統安全證明書。
Not applicable. As the generating facility is installed on the roof of a New Territories Exempted House and the height of the associated system does not exceed 1.5m (measured from the roof level), therefore, submission of Safety Certificate of Photovoltaic System Installed on Roof / Roof of Stairhood of New Territories Exempted House to Lands Department is not required.

v) 其他 (請註明) _____

Others (please specify) _____

EMSD/E/GF1 (06/2024)

D 部：聲明
Section D: Declaration

本人聲明在此申請表格填報的一切資料、陳述及附上的文件全屬真確無訛，本人亦已閱讀及同意於本表格內之「個人資料私隱聲明」。警告：如就此填申請作出虛假陳述或失實資料，即屬違法。

I declare that all particulars, statements and documents submitted herein and with this application are true and correct. I also confirm that I have read and agreed with the "Personal Data Privacy Statement" in this Form. Warning: It is an offence in law to furnish any false statement or information related to this application.

發電設施擁有人姓名或公司獲授權代表姓名：
Name / Name of Company's Authorized Representative of the Owner of the Generating Facility: _____

香港身份證號碼：
HKID Number: _____

公司職位(如適用)：
Position in the Company (if applicable): _____

公司印章 (如適用)
Company Seal (if applicable)

發電設施擁有人或公司獲授權代表姓名簽署：
Signature of the Owner / Company's Authorized Representative of the Generating Facility: _____

簽署日期：
Date Signed: _____

EMSD/E/GF1 (06/2024)

Registration of Generating Facilities

Form GF1 – Updates on Part C (e)

(e) 發電設施的支承構築物的結構安全文件
Structural safety document for the supporting structure of the generating facility

i) 由屋宇署 / 隸屬房屋局常任秘書長辦公室的獨立審查組發出就有關小型工程完工證明的認收信 ☐
Acknowledgement letter for certification on completion of relevant minor works issued by Buildings Department / Independent Checking Unit under the Office of the Permanent Secretary for Housing

ii) 由屋宇署 / 隸屬房屋局常任秘書長辦公室的獨立審查組發出就有關改動及加建工程竣工證明的認收信 ☐
Acknowledgement letter for certification on completion of relevant alteration and addition works issued by Buildings Department / Independent Checking Unit under the Office of the Permanent Secretary for Housing

iii) 已向地政總署遞交的新界豁免管制屋宇屋頂 / 樓梯頂篷裝設的光伏系統安全證明書 ☐
Safety Certificate of Photovoltaic System Installed on Roof / Roof of Stairhood of New Territories Exempted House submitted to Lands Department

iv) 不適用。由於該發電設施裝設於新界豁免管制屋宇的屋頂及有關系統的高度(由天台地台起計)不超過 1.5 米高，因此毋須向地政總署遞交新界豁免管制屋宇屋頂 / 樓梯頂篷裝設的光伏系統安全證明書。 ☐
Not applicable. As the generating facility is installed on the roof of a New Territories Exempted House and the height of the associated system does not exceed 1.5m (measured from the roof level), therefore, submission of Safety Certificate of Photovoltaic System Installed on Roof / Roof of Stairhood of New Territories Exempted House to Lands Department is not required.

v) 其他 (請註明) _____ ☐

Others (please specify) _____

D 部：聲明

Section D: Declaration

本人聲明在此申請表格填報的一切資料、陳述及附上的文件全屬真確無訛。警告：如就此項申請作出虛假陳述或失實資料，即屬違法。本人亦已閱讀及同意於本表格內之「個人資料私隱聲明」。

I declare that all particulars, statements and documents submitted herein and with this application are true and correct. Warning: It is an offence in law to furnish any false statement or information related to this application. I also confirm that I have read and agreed with the "Personal Data Privacy Statement" in this Form.

發電設施擁有人姓名或公司名稱:
Name/Company of the Owner of the Generating Facility: EM CHAN

香港身份證號碼:
HKID Number: A123456(7)

公司職位(如適用):
Position in the Company (if applicable): Manager

發電設施擁有人簽署:
Signature of the Owner of the Generating Facility:

簽署日期:
Date Signed: 06 May 2021

公司印鑑（如適用）
Company Seal (if applicable)

Registration of Generating Facilities

Certificate of Registration：

Section 21(3) of Electricity Ordinance

An owner of a registered generating facility shall display at the facility a copy of the certificate of registration.

※No person shall use an unregistered generating facility that is required to be registered under this section.※

✖Contravention of above section is an offence

✖Liable to a fine of HK$10,000


機電工程署 EMSD

發電設施註冊證明書

CERTIFICATE OF REGISTRATION OF GENERATING FACILITY

《電力(註冊)規例》

ELECTRICITY (REGISTRATION) REGULATIONS

註冊號碼 Registration Number G000001

地址 Address 香港九龍機電路1號 電力工程大廈

發出日期 Date of Issue 01 / 10 / 2018 日Day 月Month 年Year

注意事項 Points to Note

1. 本證明書必須展示於發電設施所在處。
A copy of this certificate shall be displayed at the generating facility.

2. 列明負責保養該發電設施的註冊電業承辦商的名稱及註冊號碼的告示，必須展示於該發電設施所在處。
A notice showing the name and registration number of the registered electrical contractor responsible for maintaining the generating facility shall be displayed thereat.

3. 該發電設施的擁有人必須在有關設施的資料變更後四星期內通知機電工程署。
The Electrical and Mechanical Services Department shall be notified within four weeks after any change of particulars of the generating facility.

Registration of Generating Facilities

Form GF 2

機電工程署 EMSD

表格 GF2
香港特別行政區政府
電力條例(第 406 章)
電力(註冊)規例
補領發電設施註冊證明書/
更改註冊發電設施資料

FORM GF2
THE GOVERNMENT OF THE HONG KONG
SPECIAL ADMINISTRATIVE REGION
ELECTRICITY ORDINANCE (CAP. 406)
ELECTRICITY (REGISTRATION) REGULATIONS
APPLICATION FOR A REPLACEMENT COPY OF CERTIFICATE OF
REGISTRATION OF GENERATING FACILITY/ NOTIFICATION OF
INFORMATION CHANGE OF GENERATING FACILITIES

此欄不用填寫
For Official use only
收件日期：
Receipt date:
收據編號：
Receipt Number:

(注意：填寫此申請表格前請參閱「表格 GF2 備註」，申請人(即發電設施擁有人)應以正楷填寫此申請表格各欄，並應在表格上簽署。)
(Note: Before you complete this form, please read carefully the notes on "NOTES TO FORM GF2". The applicant (i.e. the owner of generating facility) should complete all sections of this application form in block letters and sign the form.)

致 機電工程署署長：
To the Director of Electrical & Mechanical Services,

本人現作出以下申請 (只可選擇一項並加上 ✓號)－
I hereby apply for the following (please tick one box only) －

發電設施註冊號碼:
Generating facility registration number: _____

☐ 補發發電設施註冊證明書，理由如下(請在空格加上✓號，只可選擇一項)：
Replacement copy of certificate of registration of generating facility due to (Please tick in the appropriate box and only one box is allowed):-
[申請費用: 港幣340元]
[Application Fee: HK$340]

☐ 遺失
Loss

☐ 損毀 (現有損毀證明書必須交還本署註銷)
Damage (the damaged existing certificate must be returned for deletion)

☐ 更改發電設施擁有人
Change of the owner of the generating facility

☐ 只更改註冊發電設施資料 (例如:負責使發電設施保持運作安全的註冊電業承辦商，技術資料或發電設施擁有人聯絡資料等)
Only information change of registered generating facility (For example, registered electrical contractor responsible for maintaining the generating facility in safe working order, technical information, contact information of the owner of the generating facility, etc.)
[申請費用: 免費]
[Application Fee: Free of charge]

A 部：一般資料
Section A: General Information

(1) 發電設施擁有人的姓名或公司名稱:
Name or Organization of the Owner of the Generating Facility:

(2) 發電設施擁有人的聯絡地址(如與發電設施所在地址不同):
Correspondence Address of the Owner of the Generating Facility (if different from address of the generating facility):

(3) 聯絡電話:
Contact Tel. No.:
電郵地址:
Email Address:

(4) 電力公司可再生能源上網電價計劃申請編號:
Power Supply Company Renewable Energy Feed-in Tariff (FiT) Scheme Application No.:

EMSD/EL/GF2 (06/2024)

Notes：

1) Replacement of the registration certificate of generating facility
   - Electricity (Registration) Regulations Section 16
   - Application Fee HK$340
2) Change of Particulars
   - Electricity (Registration) Regulations Section 17
   - Notify the Director of Electrical and Mechanical Services within 4 weeks after the change
3) Application fee will not be refunded
   - Whether the application is approved, the fee will not be refunded
   - An applicant should not submit more than one application form at any one time.

Registration of Generating Facilities

NOTES TO FORM GF2

1. The Director of Electrical and Mechanical Services may request the applicant to submit relevant supplementary information to satisfy the requirements of all the items in this form or refuse this application for incomplete or erroneous information in this form.

2. The applicant should provide all information that are relevant to this application with photocopies of the documentary proofs. (If more space is needed, please use separate sheets and attach them to this form.)

   (a) In application for a replacement copy of the certificate of registration of generating facility due to loss or damage, the applicant have to submit the copies of documents listed in Section C item (a).
   (b) In application for a replacement copy of the certificate of registration of generating facility due to change of information of the owner of the generating facility, the applicant have to submit all the copies of documents listed in Section C.
   (c) In application for changing information of generating facility due to change of registered electrical contractor responsible for maintaining the generating facility in safe working order, the applicant have to submit the copies of documents listed in Section C item (a), (c) & (d).
   (d) In application for changing technical information of generating facility, the applicant have to submit the copies of documents listed in Section C item (a), (b), (c) & (e).

3. Any attempt to offer advantage (as defined in the Prevention of Bribery Ordinance ("POBO") (Chapter 201 of the Laws of Hong Kong)) to any Government officer with a view to influencing the outcome of this application constitutes an offence under the POBO and renders the application invalid. The case will be reported to the Independent Commission against Corruption. You should report to the ICAC (Telephone No.: 2526-6366) if any government officers or their agents solicit an advantage from you in relation to this application.

Registration of Generating Facilities

NOTES TO APPLICATION AND PAYMENT INSTRUCTIONS TO FORM GF2

1. The Application Fee is as following:
   (a) Replacement of certificate of registration of generating facility — HK$340
   (b) Changing information of generating facilities — Free of charge

   All fees are subject to revision. (Note: The paid application fee will not be refunded regardless of the result of application.)

2. Applicant is required to completed this Form, and submit this Form together with application fee to our Registration and Permit Office at G/F, The Electrical and Mechanical Services Department Headquarters, 3 Kai Shing Street, Kowloon, either in person or by post. The office hours are:

HOURS OF COLLECTION:	Monday to Friday	9:00 a.m. to 5:15 p.m.
	Saturday, Sunday and Public Holidays	closed

   Moreover, applicant can also submit application through any one of the following methods:

   (a) by post to the Director of Electrical and Mechanical Services at the above address;
   (b) by putting applications into the drop-in box located at G/F lobby of Electrical and Mechanical Services Department on Saturday only from 8:30 a.m. to 12:30 p.m.

3. Cheques, Drafts and Cashier Orders should be made payable to the "The Government of the Hong Kong Special Administrative Region" and crossed. They must not be made payable to any individual officer. Post-dated cheque will not be accepted. Cash should not be sent through the post.

Maintenance of Generating Facilities

Maintenance of Generating Facilities

Maintenance Requirements：

Section 22 of Electricity Ordinance

a) maintain the generating facility in continuous safe working order

b) display at the facility a notice showing the name and registration number of the registered electrical contractor employed for maintaining the generating facility in continuous safe working order.

Notice of Maintaining Generating Facilities

Name of Registered Electrical Contractor：
Electrical Maintenance Company

Registration No.：123456

Maintenance of Generating Facilities

Maintenance Requirements :

Electricity (Registration) Regulations

c) Please make reference to the webpage of "Registration and Maintenance of Generating Facilities" of EMSD for more information. (https://www.emsd.gov.hk/filemanager/en/content_442/Leaflet_GnrtngFclts.pdf)

Maintenance of Generating Facilities

A person who contravenes the above section is liable to a fine of HK$10,000

Periodic Test of Generating Facilities (WR2)

According to Section 21(1) of Electricity Ordinance, the owner of a generating facility that is in use or on standby use shall register it with the Director unless it :

1. forms part of an electrical installation that requires a periodic test certificate to be submitted to the Director under this Ordinance

(6) **固定電力裝置資料：**
Particulars of the fixed electrical installation:

業務性質或固定電力裝置所在房產類別：
Business nature or type of premises where the fixed electrical installation is located: _____

_____

固定電力裝置所在地址：
Address of the fixed electrical installation:
單位：Flat: _____ 樓層：Floor: _____ 樓宇名稱：Name of the building: _____
街號：Street no.: _____ 街道：Street: _____
其他街號（如有）：Other street no. (if any): _____ 其他街道（如有）：Other street (if any): _____
屋邨名稱：Name of the estate: _____ 地區：District: _____ * 香港 / 九龍 / 新界 * HK / KLN / NT
固定電力裝置擁有人的姓名或機構名稱：
Name or organisation of the owner of the fixed electrical installation: _____

固定電力裝置擁有人或機構的聯絡地址（如與上項不同）：
Correspondence address of the owner of the fixed electrical installation (if different from the above): _____

聯絡電話：Contact Tel. No.: _____ 已成立業主立案法團：*〔是 / 否〕，Incorporated Owners Formed: * [Y / N],

以上屋產有否安裝可再生能源發電設施? *〔是 / 否〕
Is there any renewable energy generating facility installed in the premises? * [Y / ✖]

如是，是次定期檢測有否包括該發電設施? : *〔包括(另附核對表) / 不包括^〕
If yes, is it included in this periodic test? * [Included (with checklist enclosed) / Not included^]
[^註: 倘若是次定期檢測不包括該發電設施，請確保該發電設施已包括在其他的定期測試證明書(表格 WR2)內。]
[^ Note: If it is not included in this periodic test, please ensure that it is covered by another periodic test certificate (Form WR2)]

Mandatory for WR2

Sample Checklist for Inspection and Testing of Renewable Energy Power System Installations (Checklist No. 3)

Checklist No. 3— Items for Renewable Energy Power System (REPS) Installations

Installation Address: _____

		Tested by/Date (N/A if not applicable)
(a) Power Generating Equipment		
(i)	The solar PV panels are certified by the recognised national/international organisations or relevant testing and certification authorities complying with relevant safety standards such as IEC 61215, BS EN 61215, IEC 61730, UL 1703 or equivalent.	_____
(ii)	Other renewable energy power generating equipment (e.g. wind turbine) complies with relevant international design/safety standards.	_____
(b) Inverter		
(i)	Anti-islanding function incorporated (with tripping time as required by the Electricity Supplier).	_____
(ii)	Synchronisation check function incorporated (to ensure that connection of the inverter to the distribution system will only take place when the inverter output and the distribution system are operating in synchronism).	_____

Sample Checklist for Inspection and Testing of Renewable Energy Power System Installations (Checklist No. 3)

		Tested by/Date (N/A if not applicable)
(iii)	Automatic isolation function incorporated (to isolate the REPS from the distribution system automatically when fault occurs in the REPS).	
(iv)	Voltage and frequency regulator incorporated.	
(v)	Under / Over-frequency / voltage protection function incorporated (to disconnect the inverter from the distribution system when the frequency and/or voltage of the Grid falls out of normal range).	
(vi)	Auto-reconnection function incorporated (to reconnect the inverter back to the distribution system when the frequency and/or voltage of the Grid resumes to normal operational range for a pre-defined period of time (with such time period to be agreed with the Electricity Supplier)).	
(vii)	Inverter are certified by the recognised national/international organisations or relevant testing and certification authorities complying with relevant safety standards such as IEC 62109, BS EN 62109, UL 1741 or equivalent.	
(c)	**Lightning Protection**	
(i)	Proper lightning protection systems provided for the outdoor equipment.	

Sample Checklist for Inspection and Testing of Renewable Energy Power System Installations (Checklist No. 3)

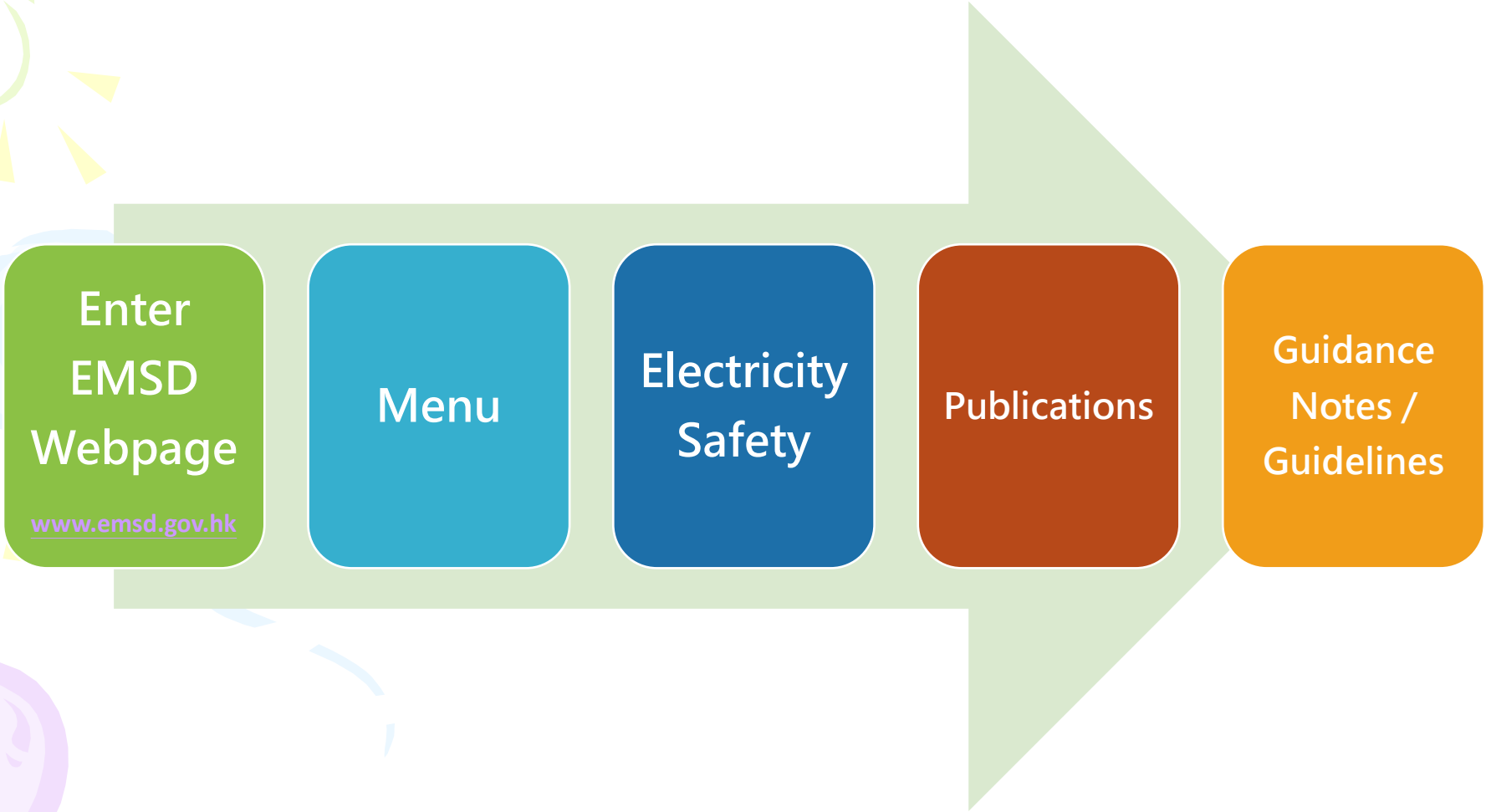
		Tested by/Date (N/A if not applicable)
(d) Outdoor Installation		
(i)	Equipment installed outdoor being selected and erected in compliance with Code 15 of CoP.	_____
(e) REPS Circuit		
(i)	DC protection devices provided for the circuits between renewable energy power generating equipment and inverter in compliance with Code 9 of CoP.	_____
(ii)	Inverter incorporated with isolation transformer or separated isolation transformer in compliance with IEC 61558 or equivalent provided.	_____
(iii)	Pre- & post-meter lockable switches (DP / 4P) provided for isolating all sources of supply from the Grid and REPS to Renewable Energy Meter.	_____
(iv)	The earth fault loop impedance of the circuit in compliance with Code 11 of CoP.	_____
(v)	Operation of isolators, circuit breakers and switches checked in compliance with Code 21B(9) of CoP.	_____
(vi)	The RCD/RCBO trip time checked in compliance with Code 21B(9) of CoP (if applicable).	_____

Sample Checklist for Inspection and Testing of Renewable Energy Power System Installations (Checklist No. 3)

		Tested by/Date (N/A if not applicable)
(f) Earthing		
	Appropriate protective conductors effectively connected.	_____
(g) Notice and Labels		
(i)	Notice displayed at the facility showing the name and registration number of the REC employed for maintaining the generating facility in continuous safe work order checked in compliance with Code 17 of CoP.	_____
(ii)	Dual power supply warning labels displayed at all electrical equipment with dual power supply sources checked in compliance with Code 17 of CoP.	_____
(iii)	DC warning labels displayed at DC switchgear checked in compliance with Code 17 of CoP.	_____

Remarks: REC and REW are required to ensure their responsible fixed electrical installation is able to comply with the relevant requirements of Code of Practice for the Electricity (Wring) Regulations (CoP), rather than the items as listed in the checklists only.

Sample Checklist for Inspection and Testing of Renewable Energy Power System Installations (Checklist No. 3)



Registration of Electrical Workers and Electrical Contractors

Registration of Electrical Workers

•Cap. 406 Electricity Ordnance Section 31(1)

Subject to section 32, no person shall do personally or offer or undertake to do electrical work personally unless he is a registered electrical worker who is entitled by his certificate to do the work.

Any person who violates the abovementioned regulations commits an offence. On a first conviction to a fine of $50,000 and to imprisonment for 6 months. Subsequent conviction to a fine of $100,000 and to imprisonment for 6 months.

•Cap. 583 "Construction Workers Registration Ordinance" Section 3(1)

A person shall not personally carry out on a construction site construction work unless the person is a registered construction worker.

Registration of Electrical Workers

Registered Construction Worker (Electrical) is not identical to Registered Electrical Worker

*Two Certificate of Registration is not interchangeable.

- Electrical Works in Construction Site
  - If the electrical work fall into the classification under "Construction Workers Registration Ordinance" Cap. 583 and "Electricity Ordinance "Cap. 406.

→ The concerned worker must be a Registered Construction Worker and Registered Electrical Worker simultaneously.

Registration of Electrical Workers

Electrical Works can be categorized into 5 grades:

Grade	Approved Works
A	Maximum demand not exceeding 400 A, single or three phase
B	Maximum demand not exceeding 2500 A, single or three phase
C	Low voltage fixed electrical installation of any capacity
H	High voltage electrical installation
R	Special Types of Fixed Electrical Installations： • NS neon sign installation； • AC air-conditioning installation； • GF generating facility installation； • WH unvented electric thermal storage type water heater installation (not exceeding 200 liters storage capacity)； • CD connection / disconnection of electricity supply to / from an low voltage electrical equipment and associated electrical work on the equipment

Registration of Electrical Workers

Grade A, Grade B, and Grade C Electrical Works are categorized by the **maximum demand** of the fixed electrical installation.

For typical buildings, maximum demand of the fixed electrical installations is the **maximum approved loading** of the fixed electrical installation by the power company.

When the overcurrent setting of the main switch of the power system is set below the approved loading of the power company, the grade of the electrical installation is based on the actual overcurrent setting.

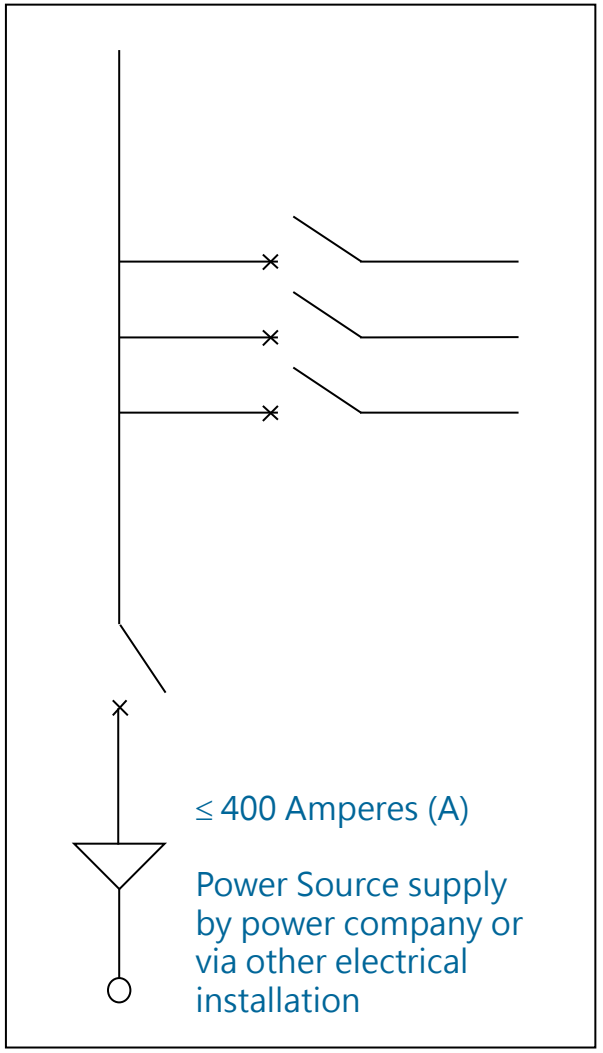

電業工程人員註冊證明書
Certificate of Registration of Electrical Worker
電力條例（第406章）ELECTRICITY ORDINANCE (CAP. 406)
註冊編號 Registration Number: W0 0 0 0 0 1
姓名： 陳安全
Name: CHAN ON CHUEN
工程級別 Grade: A
准許工程 Permitted Work: AO
有效日期由 Valid from: 02/06/2009
至 until: 01/06/2012
簽發機構 Issued by: 機電工程署 EMSD

Grade A Electrical Works

Maximum demand not exceeding 400 A

Example：

a) Electrical installation with maximum demand not exceeding 400A in general old buildings

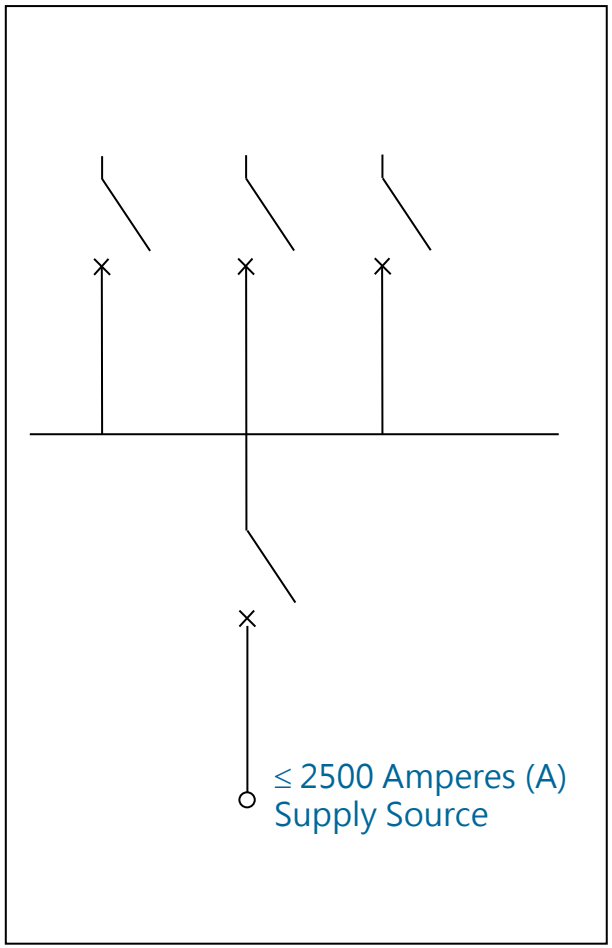


Grade B Electrical Works

Maximum demand not exceeding 2500 A

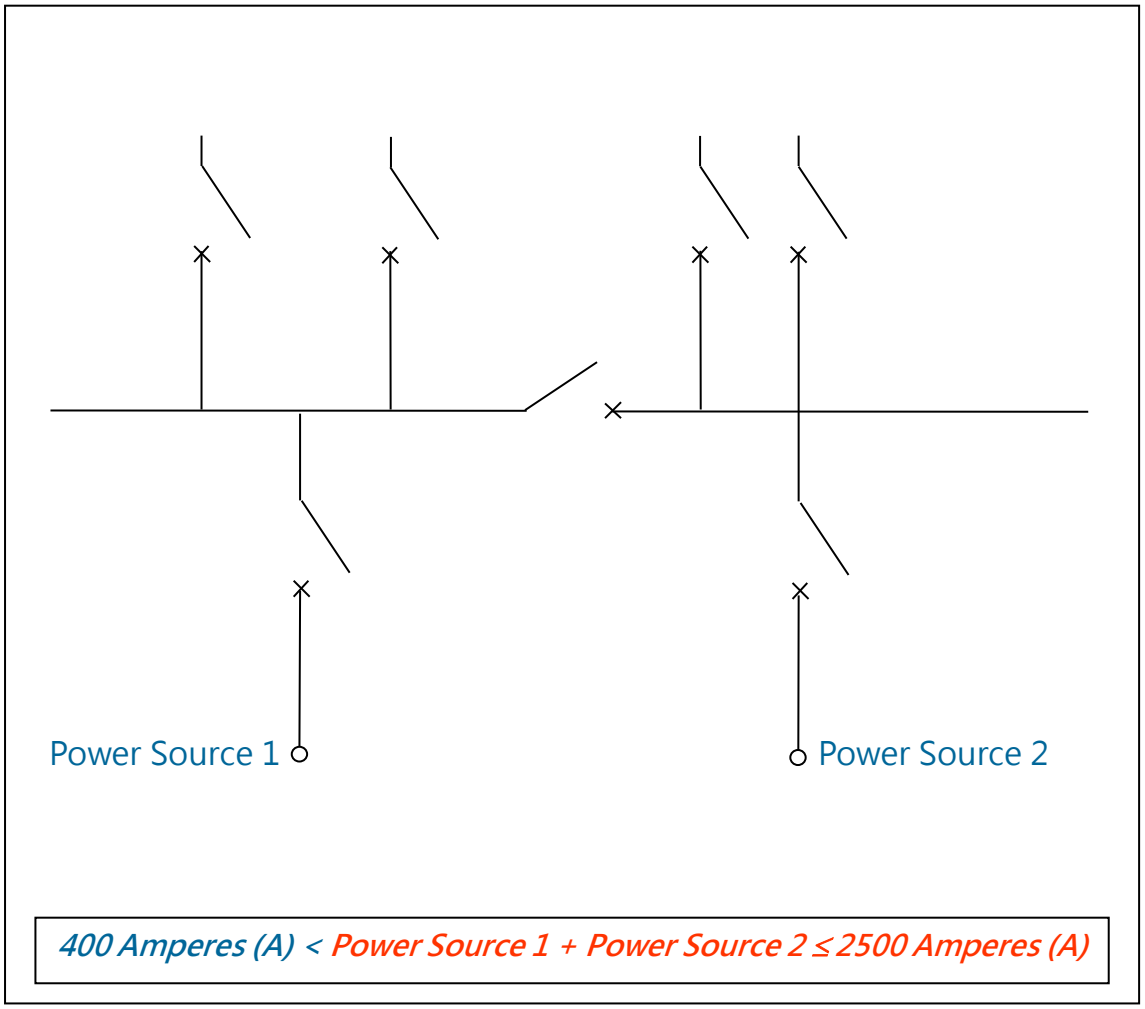
Example：

a) Electrical installation with a power supply source under 2500 A



Grade B Electrical Works

b) Power supply by multiple infeed source under 2500 A, and the total current demand over 400A but under 2500 A

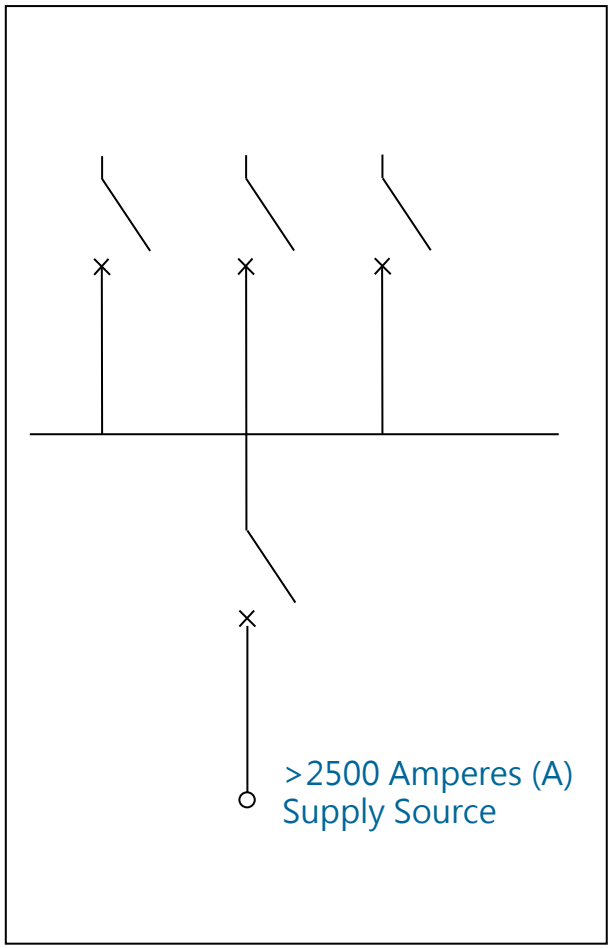


Grade C Electrical Works

Low voltage fixed electrical installation of any capacity

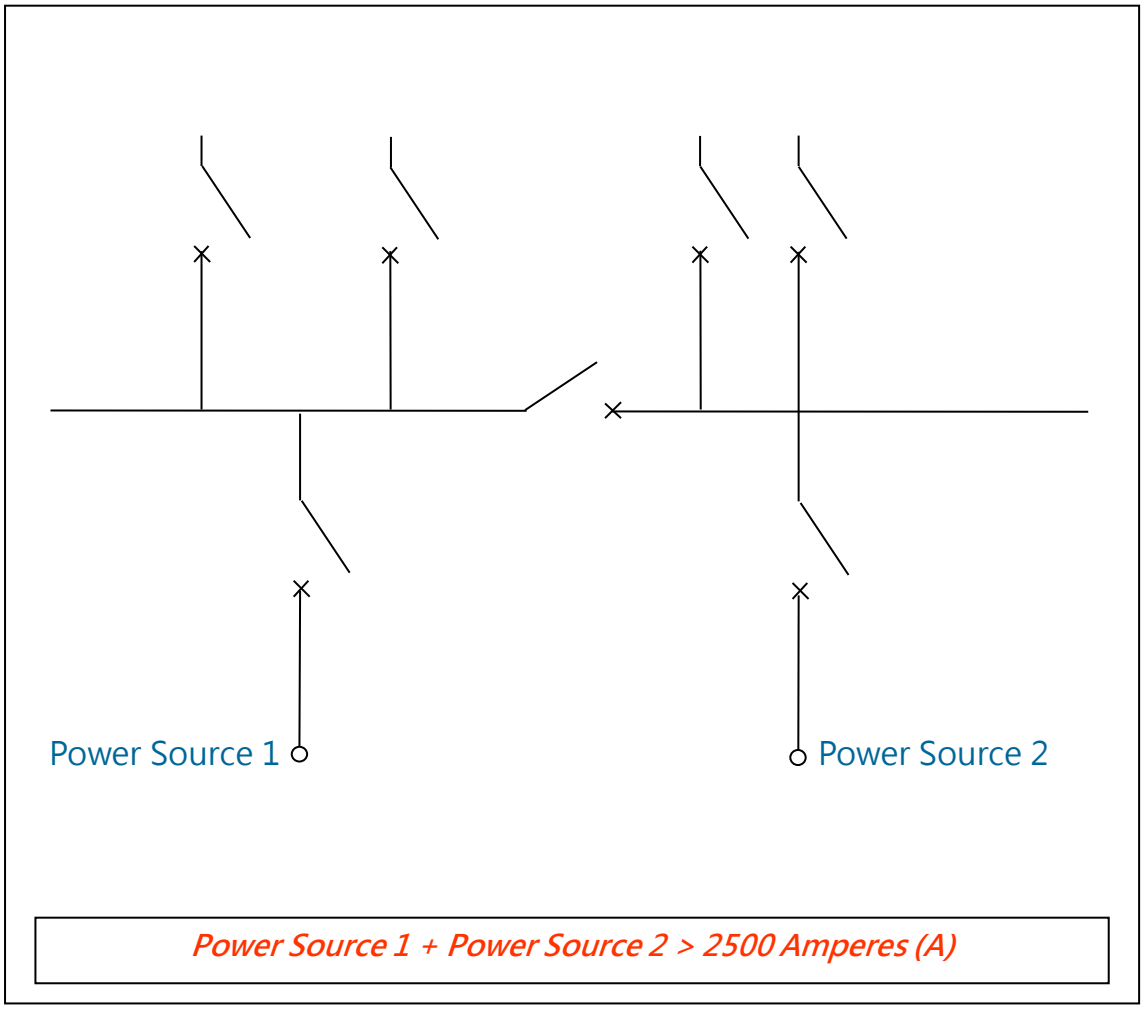
Example：

a) Electrical installation with a power supply source over 2500 A



Grade C Electrical Works

b) Power supply by multiple infeed source under 2500 A, and the total current demand over 2500 A



Grade H Electrical Works

- Grade H means electrical work on a high voltage electrical installation.
- High Voltage Electrical Installations：

a) between conductors, 1000V root mean square alternating current ($V_{ac,rms}$) or 1500V direct current (V_{dc})

b) between a conductor and earth, 600V root mean square alternating current ($V_{ac,rms}$) or 900V direct current (V_{dc}).

Grade R Electrical Works

Grade R includes electrical work on one or more of the following types of installations:

- NS neon sign installation ;
- AC air-conditioning installation ;
- GF generating facility installation ;
- WH unvented electric thermal storage type water heater installation (not exceeding 200 liters storage capacity) ;
- CD connection / disconnection of electricity supply to / from an low voltage electrical equipment and associated electrical work on the equipment

Grade R Electrical Works

1. A registered electrical worker **must possess** a Grade NS and Grade WH permitted work registration in order to carry out electrical work on neon sign installation and unvented electric thermal storage type water heater.

2. Grade A, B, C, H registered electrical workers without Grade NS and Grade WH permitted work registration are not permitted to carry out electrical work on neon sign installation and unvented storage type electric water heater.

Registration of Electrical Contractors

Cap. 406D Electricity (Registration) Regulations Section 3

To be qualified as a registered electrical contractor the applicant for registration must either employ at least one registered electrical worker or—

a) if the applicant is an individual, he must be a registered electrical worker; or

b) if the applicant is a partnership, one of the partners must be a registered electrical worker.

Registration of Electrical Contractors

Cap. 406 'Electricity Ordinance' Section 34(1)

No person shall do business as an electrical contractor or contract to carry out electrical work unless he is a registered electrical contractor.

Cap. 406 'Electricity Ordinance' Section 35(1)

No person shall employ a person other than a registered electrical contractor to carry out electrical work.

Registration of Electrical Contractors

Cap. 406 'Electricity Ordinance' Section 35(3)

an owner of an electrical installation may employ a registered electrical worker of the appropriate grade on a full time basis at a regular wage or salary to do electrical work on that installation.

Cap. 406 'Electricity Ordinance' Section 34(6)

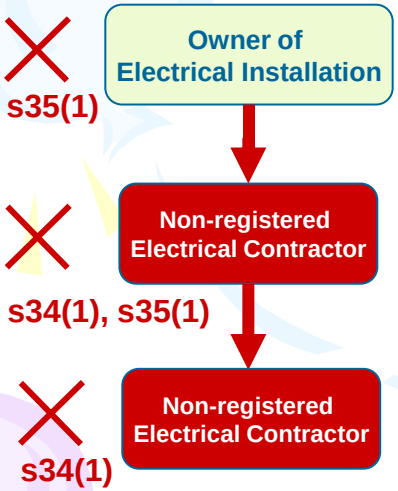
A registered electrical contractor and an owner referred to in section 35(3) shall effectively supervise a registered electrical worker employed by him.

Any person who violates the abovementioned regulations commits an offence. On a first conviction to a fine of $50,000 and to imprisonment for 6 months. Subsequent conviction to a fine of $100,000 and to imprisonment for 6 months.

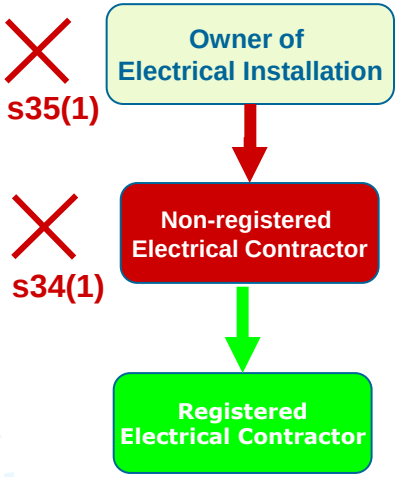
Registration of Electrical Contractors

Any person (including a registered electrical worker) who is not a registered electrical contractor, undertakes or contracts to perform electrical work as an individual or other capacity, even if the electrical work is sub-contracted by the registered electrical contractor to the relevant person, or the person subcontracted the electrical work to a registered electrical contractor, and the person is guilty of a crime.

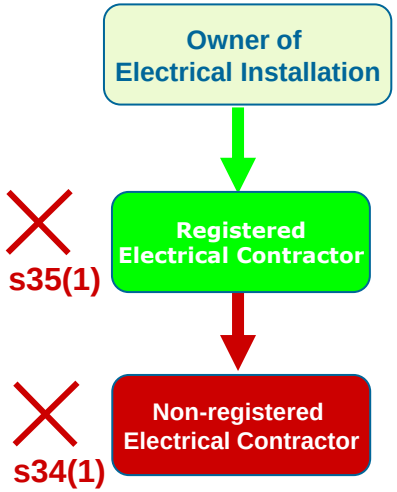
Example 1



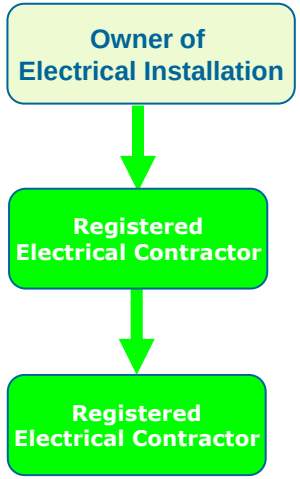
Example 2



Example 3



Example 4



Responsibilities of a Registered Electrical Worker

1. shall carry out electrical work in compliance with the requirements of the Electricity Ordinance
2. shall have your registration certificate with yourself or available at your workplace while doing electrical work.

Responsibilities of a Registered Electrical Worker

3. According to the expiry date specified in the certificate of registration, apply for renewal of registration to the Electrical and Mechanical Services Department on time. If the renewal application is not submitted before the expiry date, the applicant must re-apply for registration, including submitting a certificate of recognized academic qualifications and electrical work experience for re-examination by the Electrical and Mechanical Services Department.

4. Ensure that safety precautions are taken to prevent dangerous electrical work carried out by registered electrical workers or under their supervision.

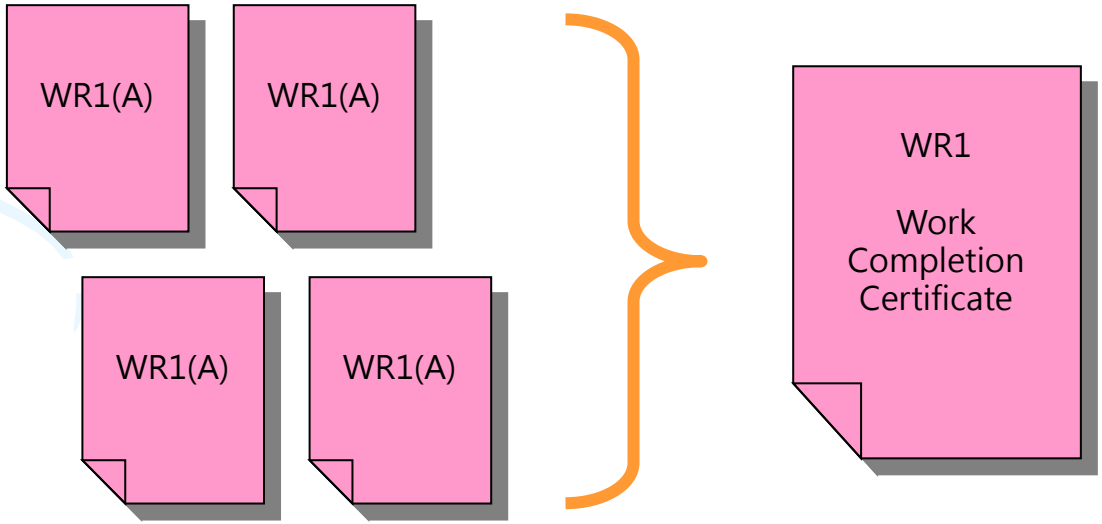
Issue of "Work Completion Certificate" (WR1)

- A fixed electrical installation shall, after completion (including any work completed after repair, alteration or addition) and before it is energized for use, be inspected, tested and certified by a registered electrical worker to confirm that the requirements of the Electricity Ordinance have been met.
- The completed "Work Completion Certificate "should be endorsed by the registered electrical workers' employing registered electrical contractor. The registered electrical contractor shall make and keep all relevant records of electrical work carried out by his employees for the lesser of 5 years.

It is a statutory requirements to issued "Work Completion Certificate " no matter the engineering contract include the fee for issuing the certificate. The registered electrical workers and registered electrical contractors should comply the "Work Completion Certificate".

Procedure of issuing "Work Completion Certificate (WR1)"

- If the fixed electrical installation is consists of more than one sections, it is not necessary to be inspected, tested, and certification by the same registered electrical worker.
- If the registered electrical workers received valid "Work Completion (Part of the Installation) Certificate" (WR1(A)) certified by other registered electrical workers, and satisfied that the certificate is issued by a appropriate grade of registered electrical worker. Then, the registered electrical worker can issue a "Work Completion Certificate" (WR1) for that fixed electrical installation.



Issue "Periodic Test Certificate" (WR2)

- In order to ensure personal safety of the electrical workers and avoid affecting building power supply in case of electrical accident, the power company's electricity supply should be cut off while carrying out PITC work on main switchboard that is connected to power company's transformer.
- For WR2 submission involving the above-mentioned main switchboard, the **power company's record for temporary disconnection of electricity supply** (e.g. power company's relevant correspondences or receipt, etc.) shall also be submitted.

Notes for Issuing Certificate

a) A registered electrical worker should not sign certificates for tests and inspections unless he has carried out or supervised the tests and inspections on site, and is satisfied with the results of the tests and inspections.

b) A registered electrical worker should not sign certificates for tests and inspections carried out by other registered electrical workers unless:

(i) he has received the appropriate certificates for the tests and inspection results certified by other registered electrical workers;

(ii) he is satisfied with the results of the tests and inspections;

Notes for Issuing Certificate

(iii) he is satisfied that the certificates or inspection reports submitted to him are completed and signed by registered electrical worker of appropriate grade and in compliance with the Wiring Regulations; and

(iv) he has taken reasonable steps to ascertain that the tests and inspections have been genuinely carried out.

c) Registered Electrical Workers must sign on the completed certificate (WR1, WR2) by himself / herself with **the signature sample registered to EMSD**.

d) Regarding to **certificate (WR1, WR2)** or **Certificate of Electrical Works Experience** must be signed by respective **authorized person of registered electrical contractor with the signature sample registered to EMSD**.

Code of Practice for Electricity (Wiring) Regulation

Notes for installation of water heater inside bathrooms：

Protection of Supply Circuit

"Code of Practices for Electricity (Wiring) Regulations "Code 26(A)(3)(a)

All circuits supplying electrical equipment with exposed conductive parts within 2.25m height above finished floor level should be protected by residual current device (RCD) with a residual operating current not exceeding 30mA.

When installing or replacing water heater inside bathrooms, registered electrical contractor shall inspect the respective circuit and installed residual current device (if the circuit is not equipped with such device)

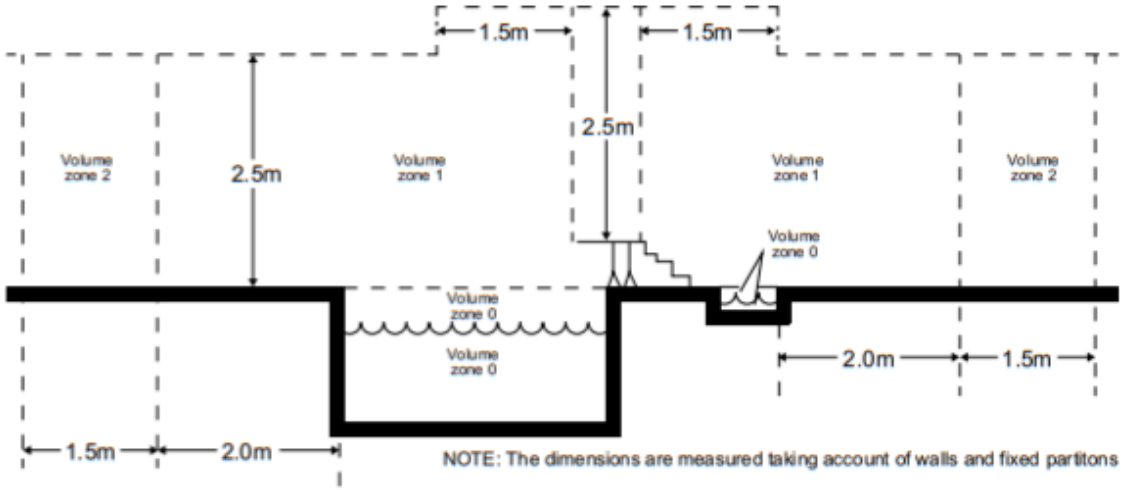
機電工程署 EMSD

Code of Practice for Electricity (Wiring) Regulation

Code 26M Technical Specification of Swimming Pools Installation

- Zone 0 only protection by Separated Extra-Low Voltage (SELV) at a nominal voltage not exceeding 12V AC r.m.s. or 30V ripple-free DC, is permitted in Swimming Pool
- The source for SELV being installed outside Zones 0, 1 and 2.

Zone dimensions for swimming pools and padding pools

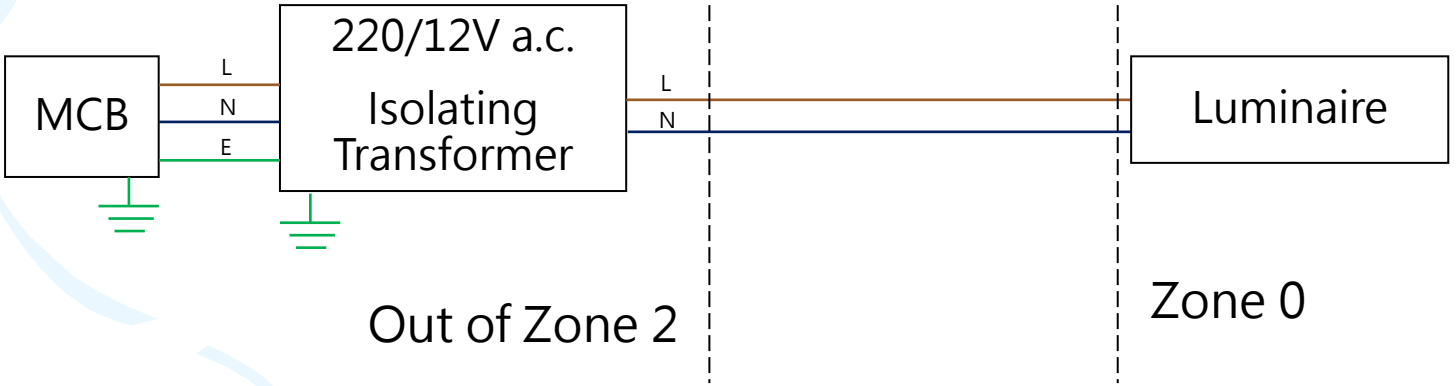


(Note: The information above is extracted from BS 7671.)

Code of Practice for Electricity (Wiring) Regulation

Code 26M Technical Specification of Swimming Pools Installation

- Separated Extra-Low Voltage (SELV) means an extra-low voltage which is electrically separated from earth and from other systems in such a way that single fault cannot give rise to the risk of electric shock.
- **Isolating Transformer shall comply with IEC 61558**



Typical Power Supply Arrangement of Underwater lighting with Separated Extra-Low Voltage
(Secondary ELV circuit should not be eathred)

Case Study of Electrical Incidents

89

Content

- Figures
- Case Study
- Frequent Problems in Electrical Works
- Suggestions to avoid happening of Electrical Incidents

90

Figures

Year	Electrical Incidents related to Fixed Electrical Installations			
	Total	Smoke and Fire^	Electric shock	Others*
2020	36	34	2	0
2019	43	40	2	1
2018	39	36	3	0
2017	45	42	3	0
2016	55	43	11	1

^ Including, Fire, Smoke, Arcing, and Switchgear Explosion
* Including power interruptions, etc.

91

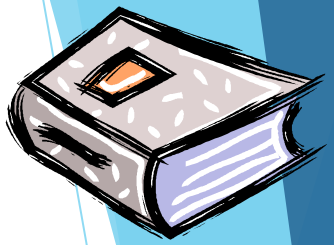
Figures (Cont.)

Year	No. of Deaths*	No. of Injuries*
2020	3(0)	2(2)
2019	1(0)	6(2)
2018	1(0)	5(1)
2017	1(1)	6(6)
2016	2(2)	12(6)

- Number in bracket represents incident happened in or near to construction/ renovation/ maintenance sites

92

Case Study (1)



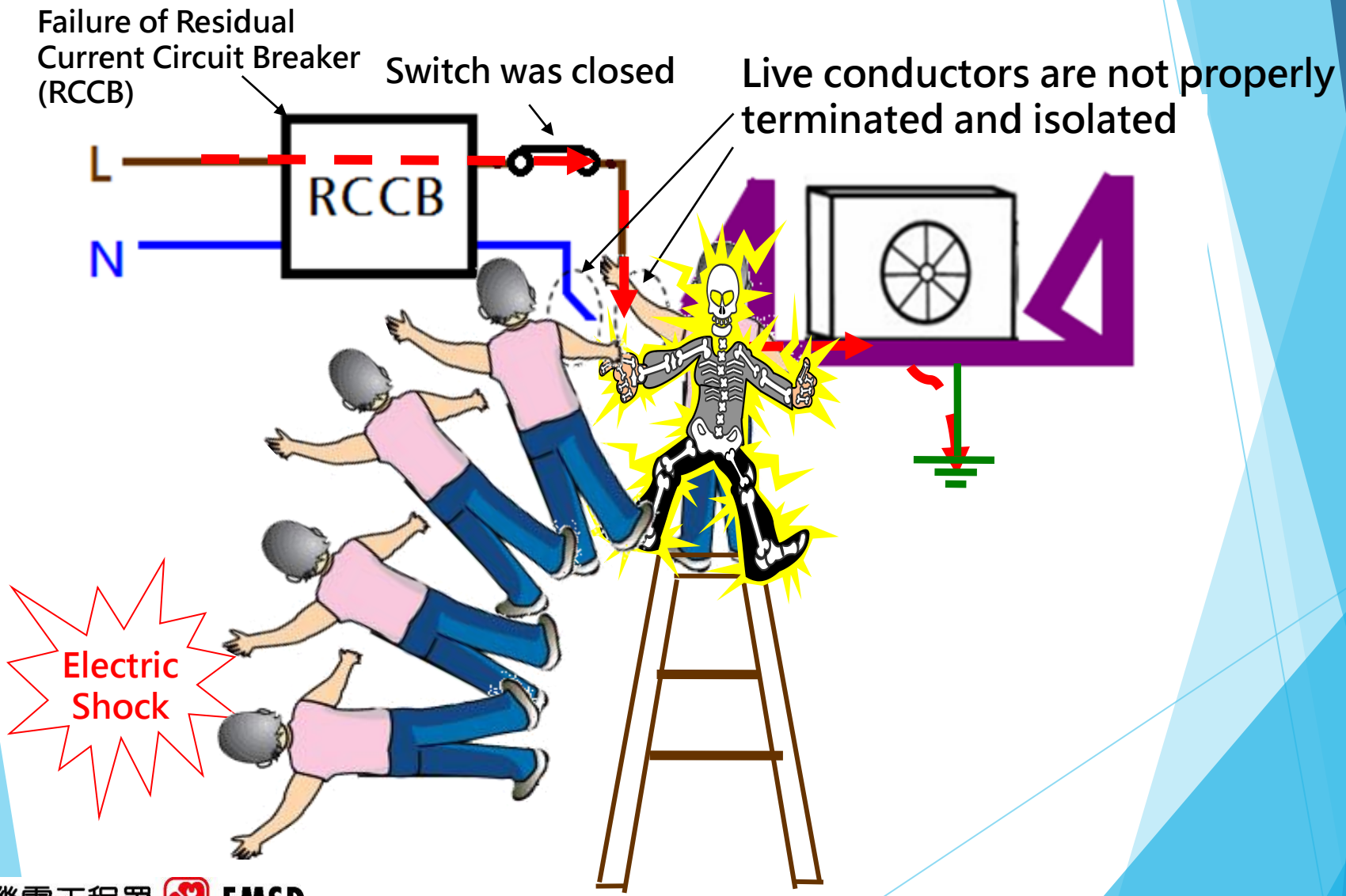
Location :

Villages house under renovation

Description :

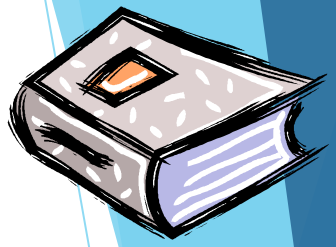
A registered electrical worker installed an air conditioner at a high position by using a aluminum ladder. He fell to his death by accidentally touching an exposed live conductor.

Case Study (1)



94

Case Study (1)



Cause of incident:

- Live conductors are not properly terminated and isolated
- Malfunction of Residual Current Circuit Breaker (RCCB)
- Have not test all the metal parts or conductors within the working area are dead.

95

Case Study (1)

Related Codes:

- **4G (5) Work-at-height**

Where electrical work cannot be **safely done** on or from the **ground or from part of a permanent structure**, please refer to the requirements set out in the **relevant publications of the Labour Department**.

- **4I General Safety Practices**

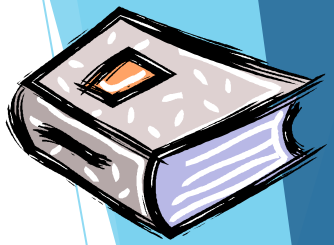
4I (b) Isolate and Lockout

The circuit /equipment under maintenance should be **isolated** as far as practicable. The relevant isolator should be **locked out**. A suitable warning notice should be placed close to the isolator.

4I (d)(ii)

Keep hands away from **any circuit** or **equipment** or **extraneous conductive parts** that are not being worked on.

Case Study (2)



Location :

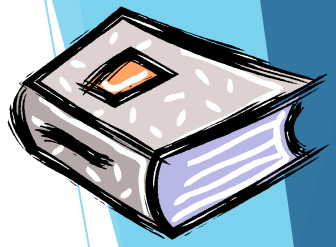
A Demolition Work in the Construction Site

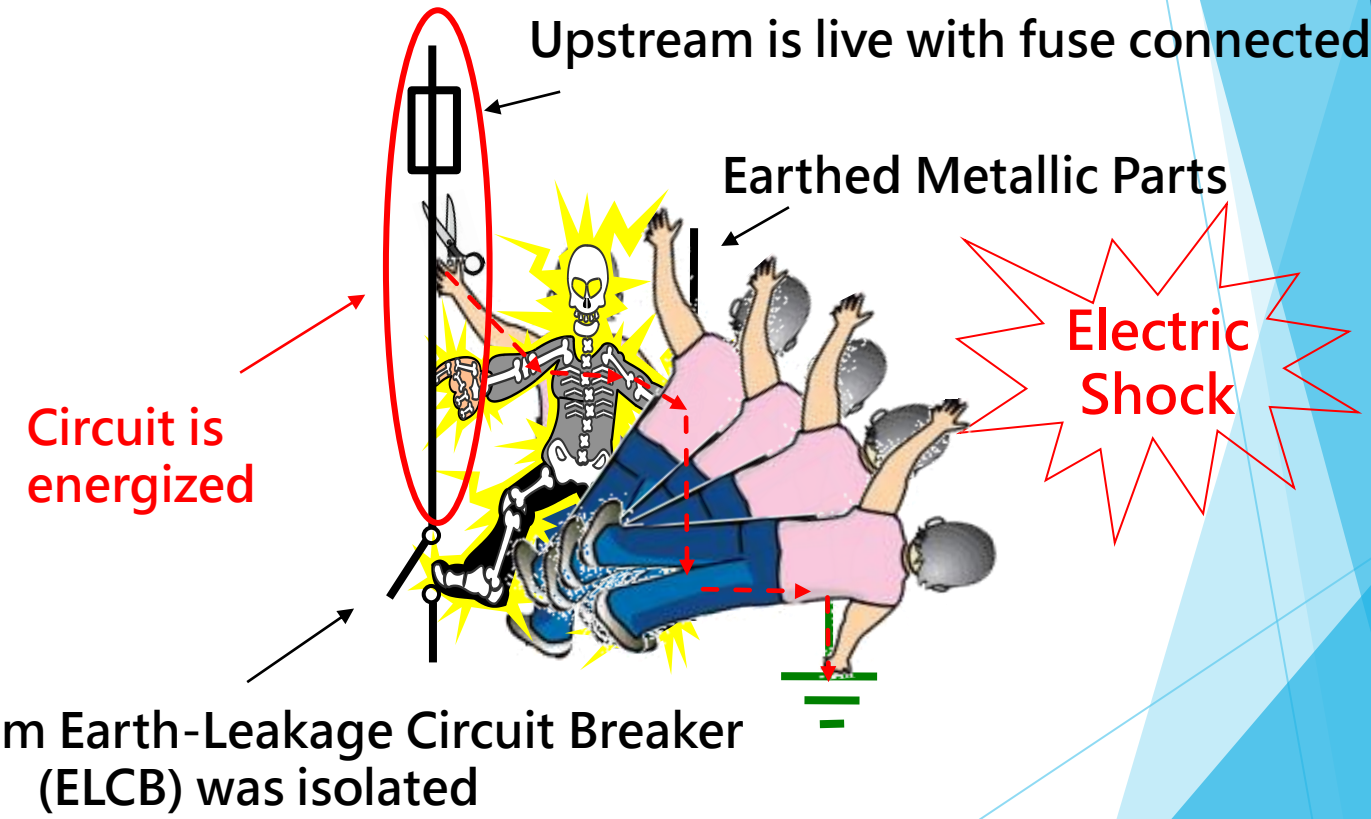
Description :

One worker encounter electric shock when dismantling the electrical cables

97

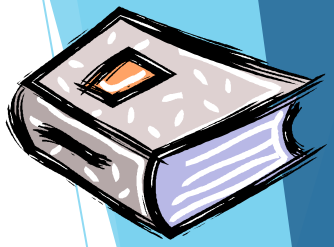
Case Study (2)





98

Case Study (2)



Cause of incident:

- Not confirming the circuit is being isolated
- Not confirming the condition of the circuit within the working area (live or dead)

Case Study (2)

Related Code:

- 4I General Safety Practices

(a) Check before Act

The scope of work and relevant circuit should be checked before starting any electrical work. Suitable lighting and adequate illumination should be provided for the workplace. The condition of tools and instruments should also be checked before carrying out electrical work.

(b) Isolate and Lockout

The circuit /equipment under maintenance should be **isolated** as far as practicable. The relevant isolator should be **locked out**. A suitable warning notice should be placed close to the isolator.

Case Study (2)

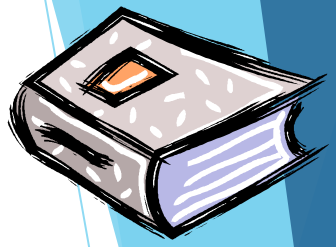
Related Code:

- 4I General Safety Practices

(c) De-energize
The circuit/equipment to be worked on should be **checked to ensure that it is dead**.

(d)(ii)
Keep hands away from **any circuit** or **equipment** or **extraneous conductive parts** that are not being worked on.

Case Study (3)



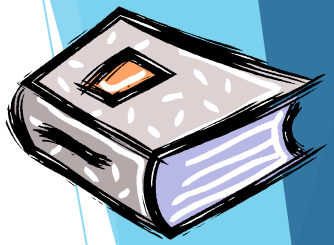
Location:

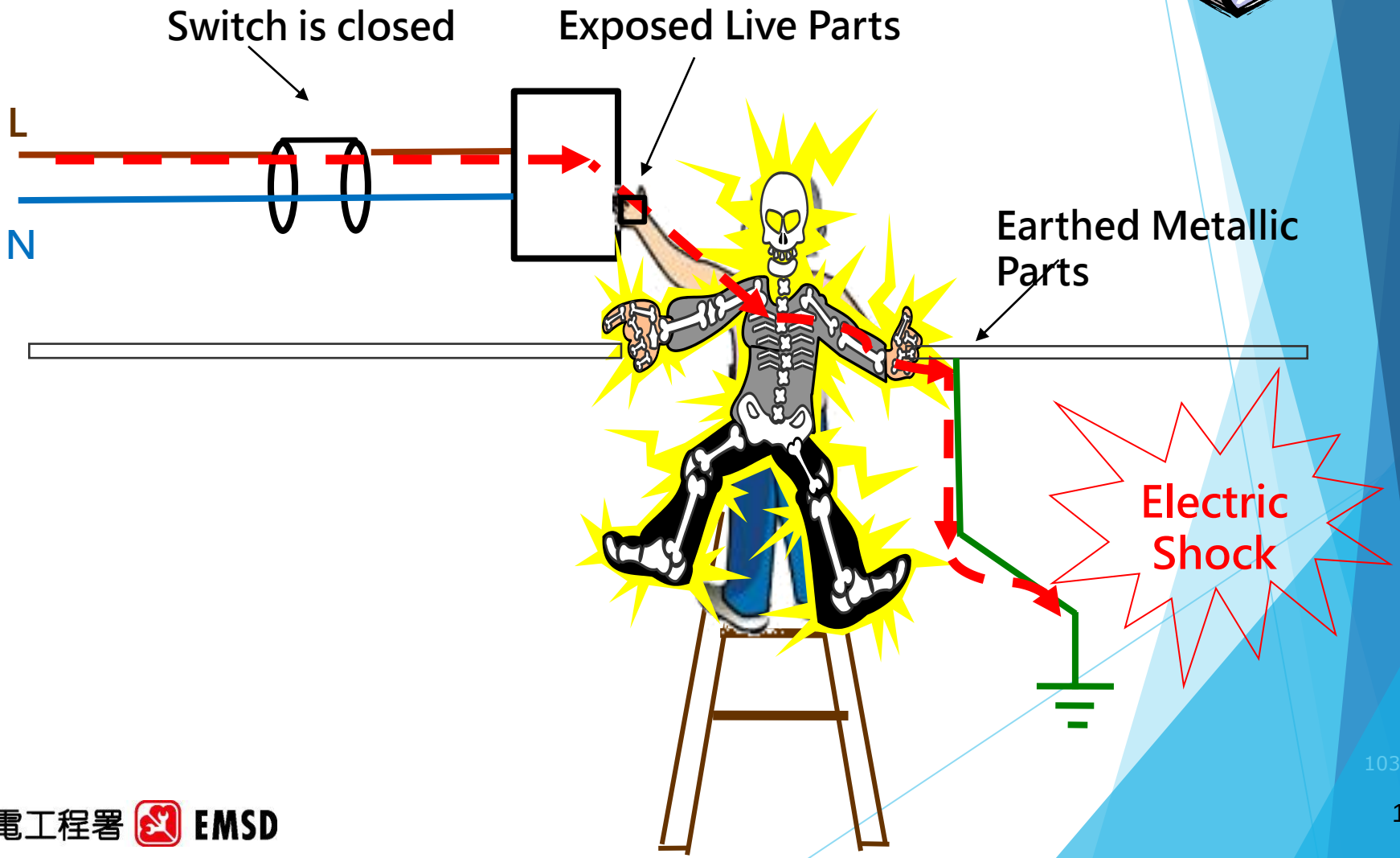
Addition and alternation project of government building

Description:

A registered electrical engineer was suspected to be electrocuted by accidentally touching some exposed live parts in the false ceiling when he was pulling the wire on the false ceiling. He was later certified dead.

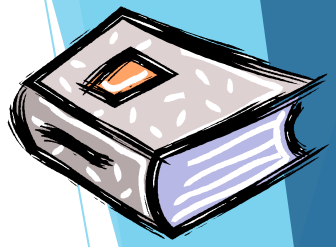
Case Study (3)





103

Case Study (3)



Cause of Incident:

- Not provide a suitable protective casing for live parts
- Not confirming the condition of the circuit within the working area (live or dead)

104

Case Study (3)

Related Code:

- 4G(7) Precautions for work inside false ceiling

a) A task-specific risk assessment should be conducted by a competent person assigned by a registered electrical contractor or the owner of fixed electrical installation to identify all potential hazards associated with work inside false ceiling before the commencement of work.

b) A registered electrical contractor or the owner of fixed electrical installation should formulate appropriate method statements with safety procedures and safety measures for the work in accordance with the relevant risk assessments, and provide necessary safety information, instruction, training and supervision to the persons performing such work to avoid danger.

c) The scope of work and circuits of energized electrical installation at the place of work and in the vicinity of the work area should be identified.

Case Study (3)

Related Code:

- 4G(7) Precautions for work inside false ceiling

d) Suitable personal protective equipment and testing equipment should be provided to and properly used by the persons performing the work.

e) The risk of inadvertent contact with live conductors/ live part of energized electrical installation at the place of work and in the vicinity (within 1.5m) of the work area as well as its access path should be assessed and eliminated. Entering into or working on fragile false ceiling or similar unsafe places should be strictly prohibited. If access to and working on such places are required, suitable means of access/ means of support/ working platforms should be provided and properly used.

f) The work area and its access path should be suitably lit.

Case Study (3)

Related Code:

- ### 4I General Safety Practices

(a) Check before Act

The scope of work and relevant circuit should be checked before starting any electrical work. Suitable lighting and adequate illumination should be provided for the workplace. The condition of tools and instruments should also be checked before carrying out electrical work.

(b) Isolate and Lockout

The circuit /equipment under maintenance should be isolated as far as practicable. The relevant isolator should be locked out. A suitable warning notice should be placed close to the isolator.

Case Study (3)

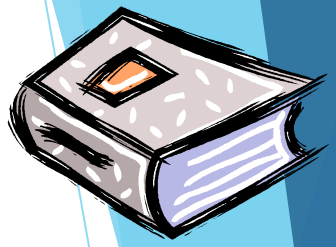
Related Code:

- 4I General Safety Practices

(c) De-energize
The circuit/equipment to be worked on should be checked to ensure that it is dead.

(d)(ii)
Keep hands away from any circuit or equipment or extraneous conductive parts that are not being worked on.

Case Study (4)



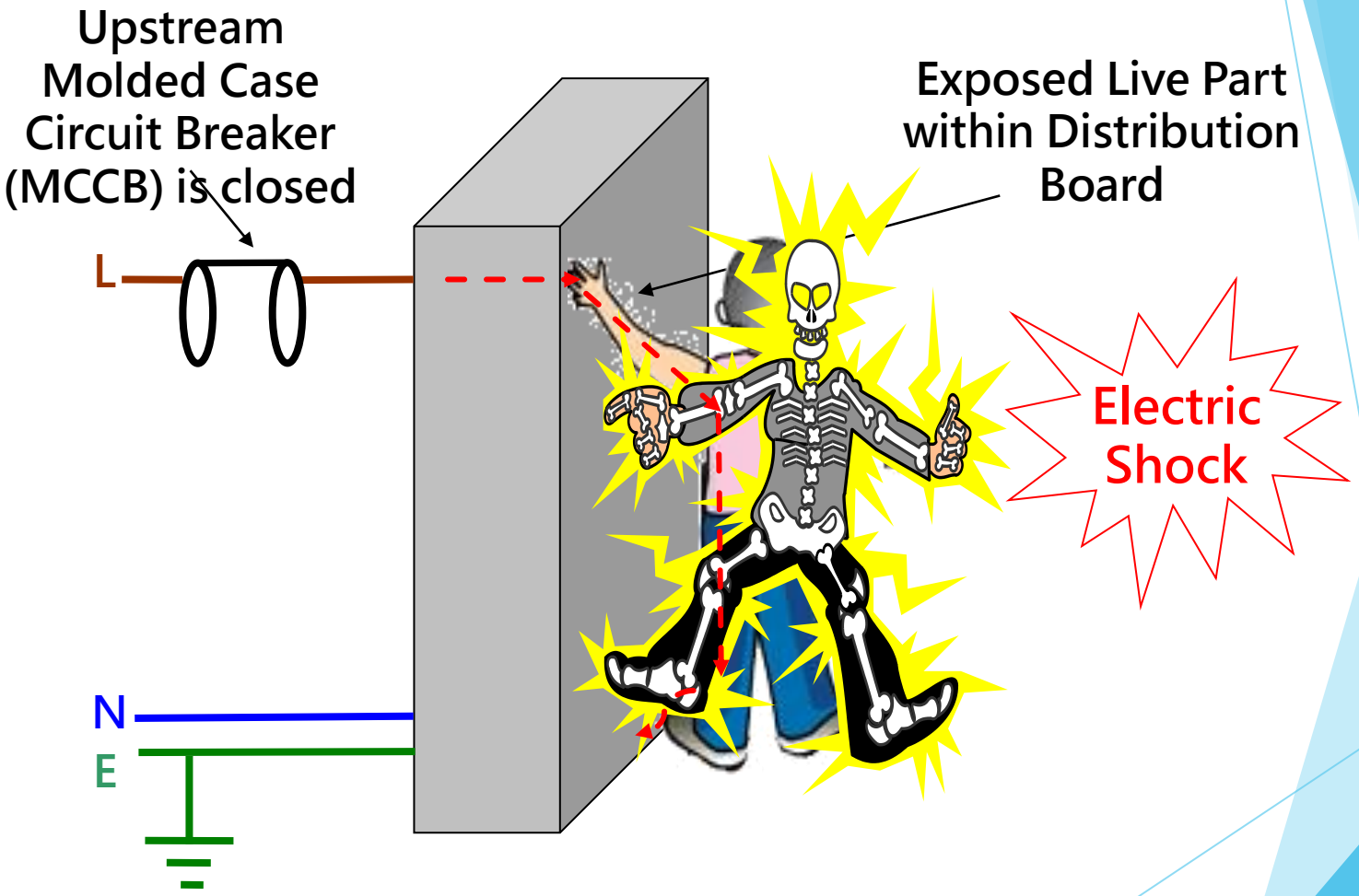
Location :

Addition and Alternation Works of Shop

Description :

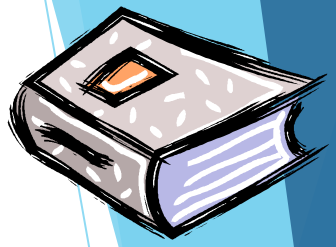
A registered electrical worker was injured and sent to the hospital due to accidentally touching the exposed live parts in the distribution box while performing electrical work.

Case Study (4)



110

Case Study (4)



Cause of incident:

- Upstream power supply is not cut off and isolated during the electrical work
- When working in live parts or working within the scope of direct or indirect contact with low-voltage live parts, Fail to take adequate precautions to avoid danger when working on live parts, direct or indirect contact with low-voltage live parts.

Case Study (4)

Related Code:

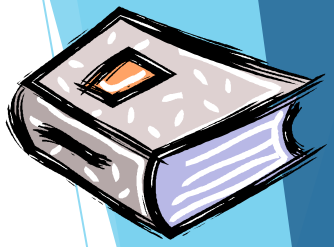
- ### 4I General Safety Practices

(a) Check before Act
The scope of work and relevant circuit should be checked before starting any electrical work. Suitable lighting and adequate illumination should be provided for the workplace. The condition of tools and instruments should also be checked before carrying out electrical work.

(b) Isolate and Lockout
The circuit /equipment under maintenance should be isolated as far as practicable. The relevant isolator should be locked out. A suitable warning notice should be placed close to the isolator.

(c) De-energize
The circuit/equipment to be worked on should be checked to ensure that it is dead.

Case Study (5)



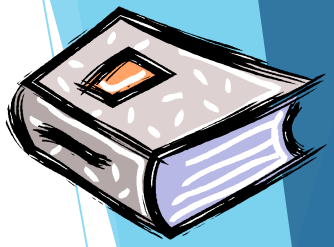
Location:

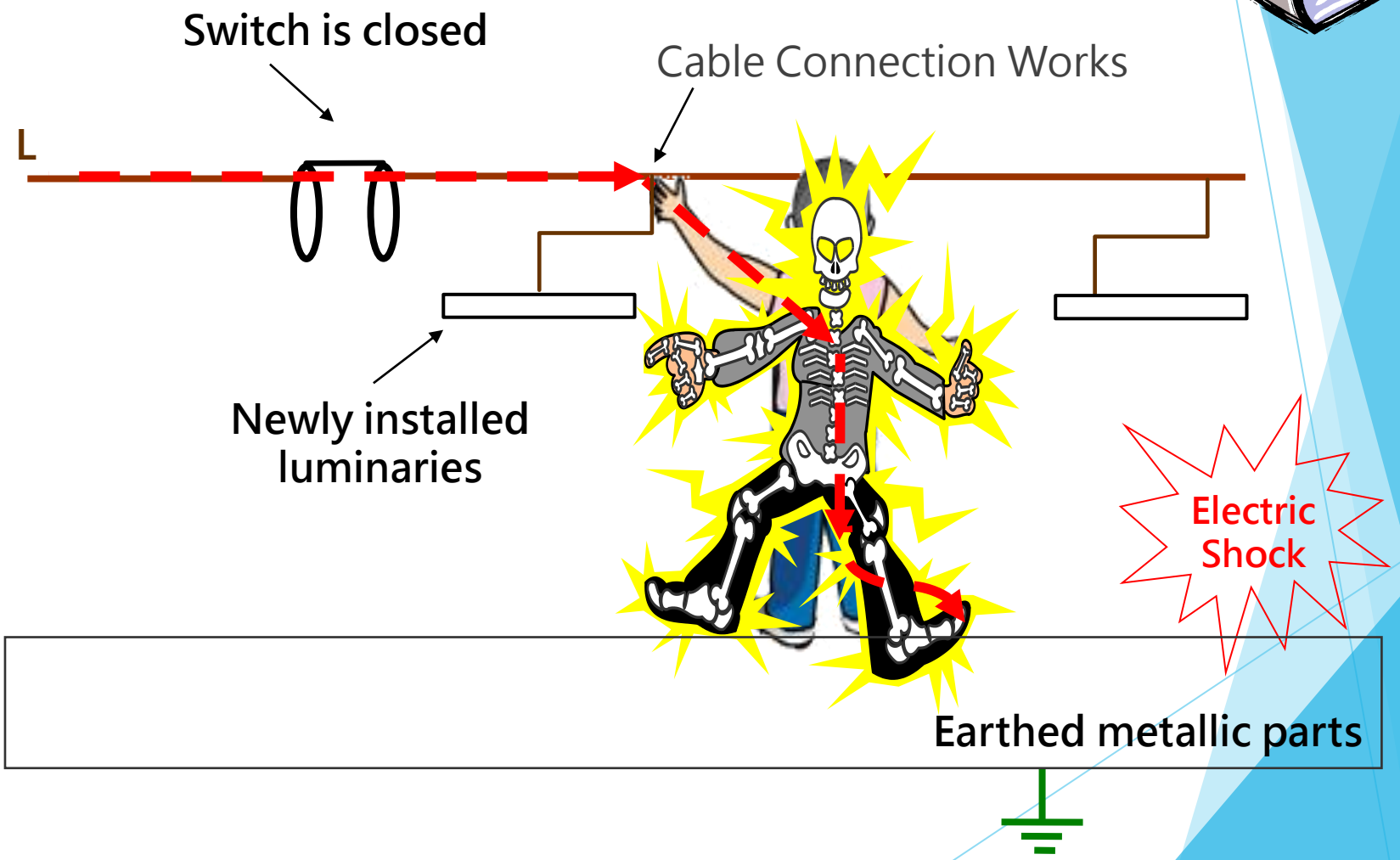
A factory building where a fitting-out works is in progress

Description:

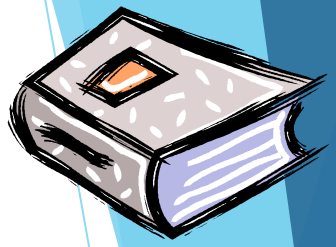
An worker was sent to the hospital due to accidental contact with exposed live wires when he was doing cable connection work. He was later certified dead.

Case Study (5)




Switch is closed
Cable Connection Works
L
Newly installed luminaries
Electric Shock
Earthed metallic parts

Case Study (5)



Cause of incident:

- Upstream power supply is not cut off and isolated during the electrical work
- When working in live parts or working within the scope of direct or indirect contact with low-voltage live parts, failing to take adequate precautions to avoid danger

Case Study (5)

Related Code:

- 4I General Safety Practices

(a) Check before Act
The scope of work and relevant circuit should be checked before starting any electrical work. Suitable lighting and adequate illumination should be provided for the workplace. The condition of tools and instruments should also be checked before carrying out electrical work.

(b) Isolate and Lockout
The circuit /equipment under maintenance should be isolated as far as practicable. The relevant isolator should be locked out. A suitable warning notice should be placed close to the isolator.

Case Study (5)

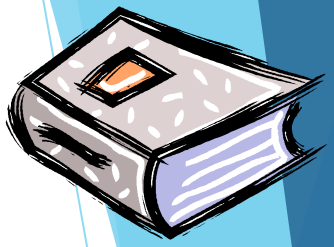
Related Code:

- 4I General Safety Practices

(c) De-energize
The circuit/equipment to be worked on should be checked to ensure that it is dead.

(d)(ii)
Keep hands away from any circuit or equipment or extraneous conductive parts that are not being worked on.

Case Study (6)



Location :

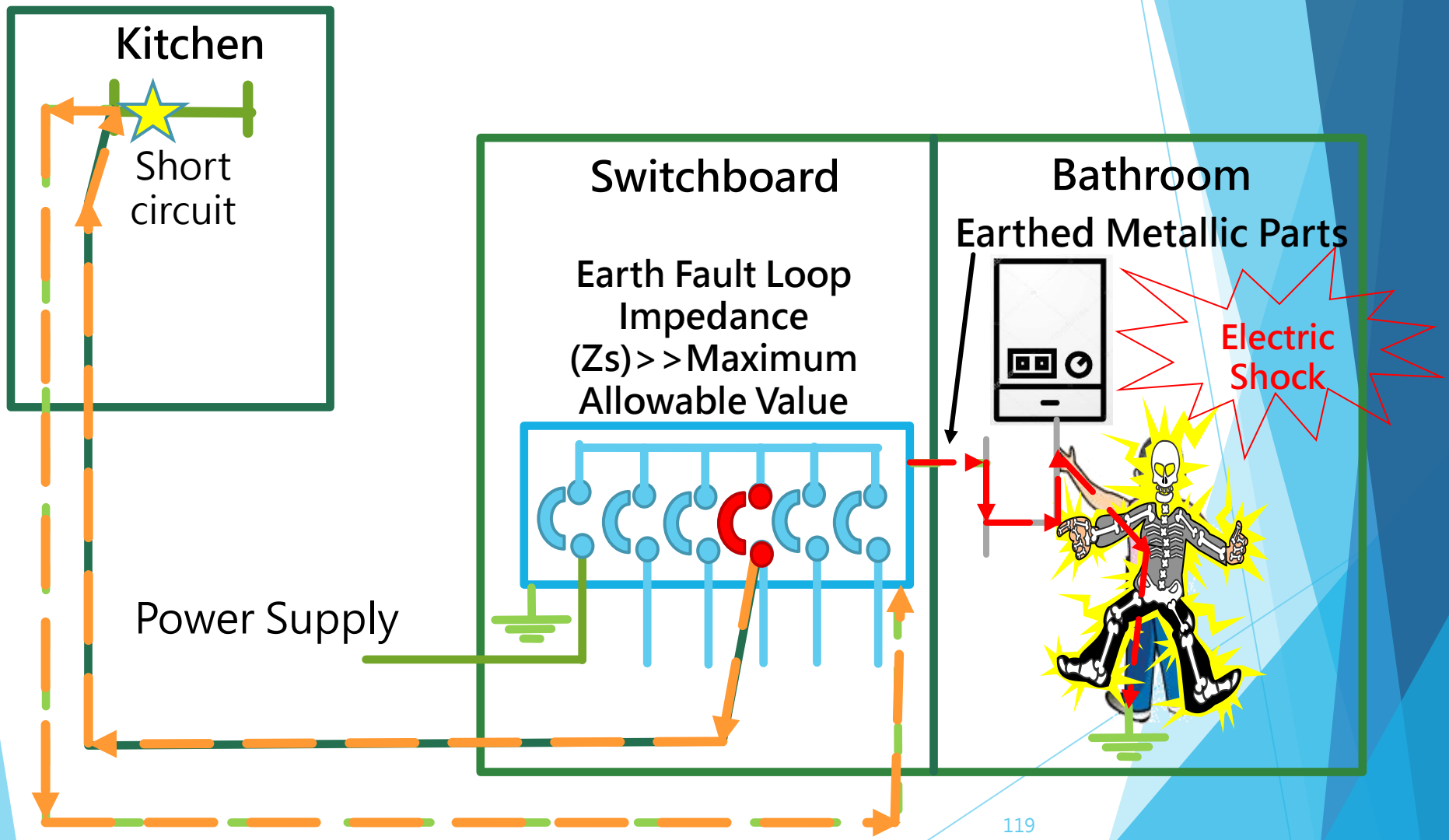
Bathroom

Description :

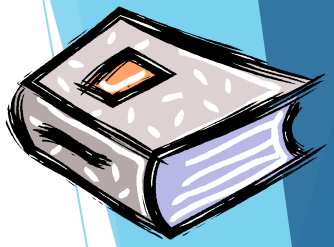
A resident died of contact with a live metal part while taking a bath in the bathroom.

118

Case Study (6)


Kitchen
Short circuit
Switchboard
Earth Fault Loop Impedance (Zs) > > Maximum Allowable Value
Power Supply
Bathroom
Earthed Metallic Parts
Electric Shock

Case Study (6)



Cause of incident:

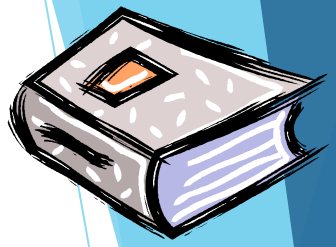
- Fluorescent tube short circuited.
- The earth fault loop impedance of the circuit concerned exceeds the maximum allowable value.
- The protection device fails to automatically cut off the current.

Case Study (6)

Related Code:

- 11B (a) Basic Requirements (EARTH LEAKAGE AND EARTH FAULT CURRENTS)
  - The characteristics of the protective devices for automatic disconnection, the earthing arrangements for the installation and the relevant impedances of the circuits concerned should be coordinated so that during an earth fault, the voltages on any exposed conductive parts and between simultaneously accessible exposed and extraneous conductive parts occurring anywhere in the installation should be of such magnitude and duration as not to cause danger. Conventional means of compliance with the above requirements are given in this Code but other equally effective means shall not be excluded.
- 11I Earth Fault Loop Impedance (Zs)

Case Study (7)



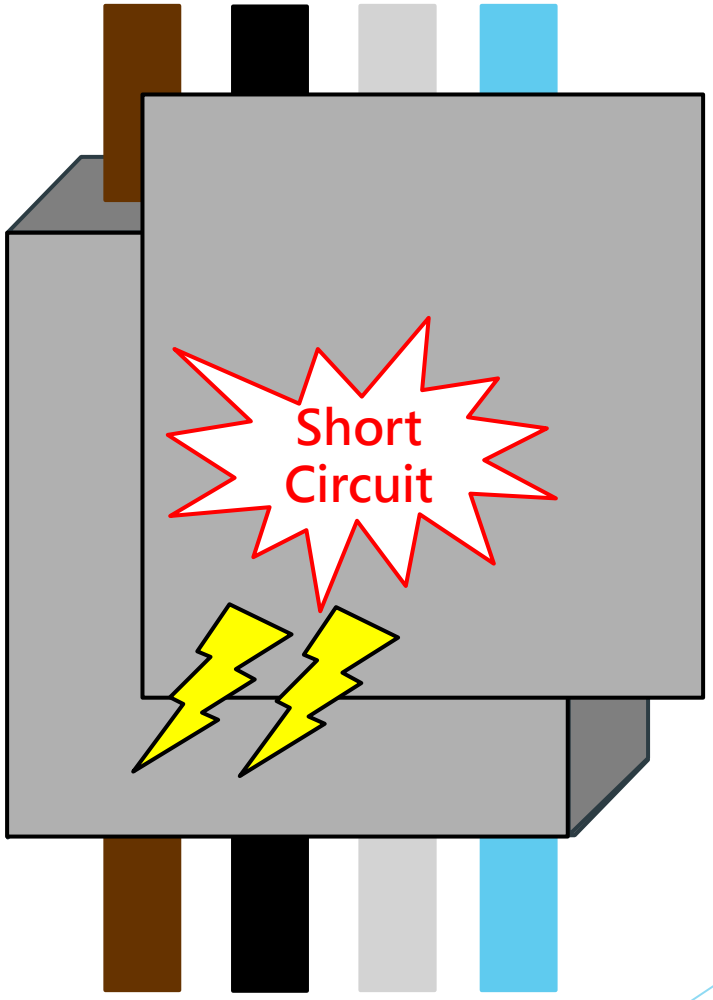
Location :

The rear staircase of a factory building where a fitting out works is in progress

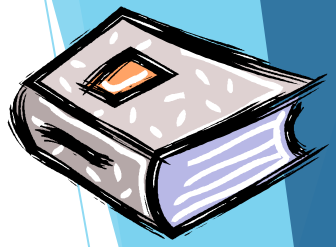
Description :

Due to improper working procedures, a registered electrical worker caused a short circuit in the busbar when opening the trunking cover. He was injured and sent to hospital.

Case Study (7)



Case Study (7)



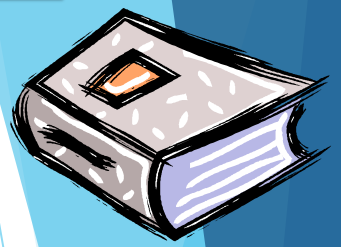
Cause of incident:

- Registered electrical workers did not follow safe working procedures to open the trunking cover
- The cable trunking cover contacts the bus bar and causes a short circuit

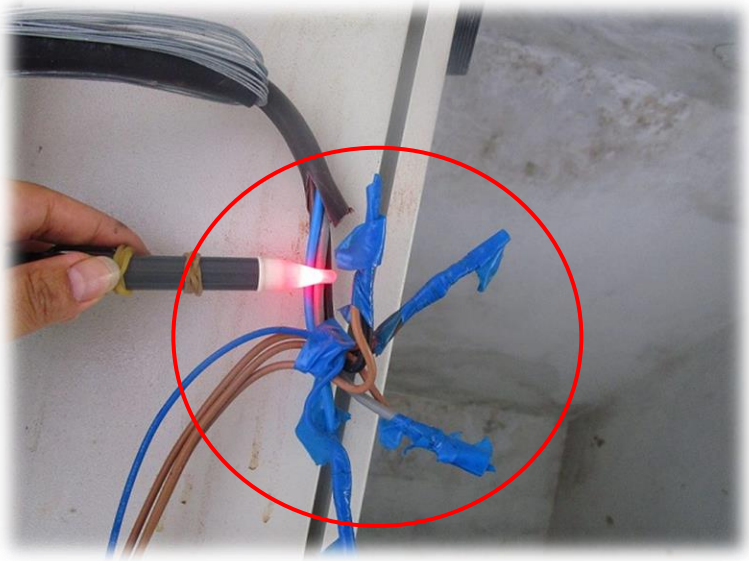
Related Code:

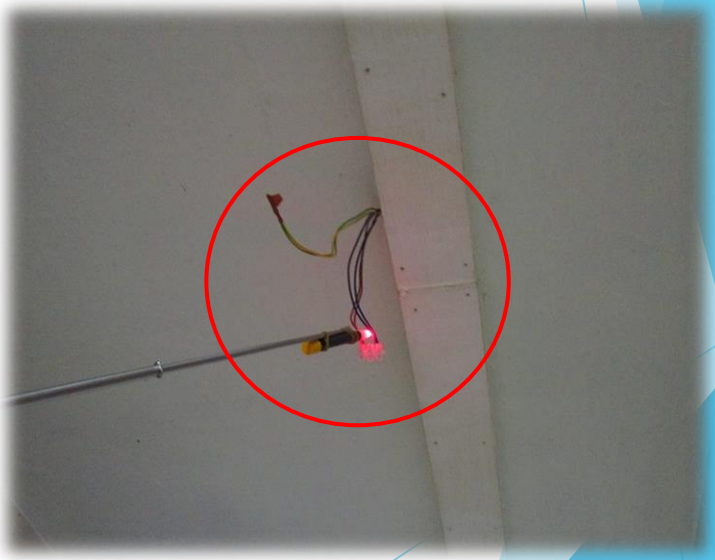
- 4I General Safety Practices
  - (d)(iv) The requirements stated in any related safety procedures and checklists should be followed.

Common Problems in Electrical Works



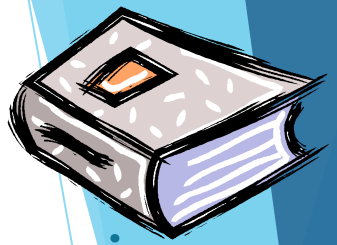
1. The incomplete circuit is connected to the power source, and the circuit is not properly terminated or isolated





125

Common Problems in Electrical Works (cont.)

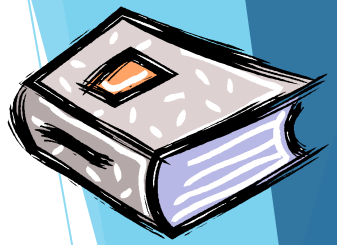


2. Before performing electrical work, the condition of the circuits involved in the work has not been checked

3. There is no test before work whether the metal parts or conductors in the work are live or not

126

Common Problems in Electrical Works (cont.)



4. Fail to use suitable personal protective equipment (including insulating gloves, safety shoes and insulating mats) for live work

127

Suggestions to avoid electrical incidents

1. Electrical work should be performed by a Registered Electrical Worker (REW) of the appropriate grade
2. A registered electrical worker must ensure that safety precautions are taken to prevent danger for the installation of wiring that he is engaged in or under his supervision.

128

Suggestions to avoid electrical incidents (cont.)

3. There should be sufficient lighting equipment at the work site.
4. Before commencement of any electrical works, the condition of tools and instruments should also be checked.
5. Before starting electrical work, check the live condition of the circuits involved in the work area.
6. Check whether the related protection devices are operating normally.

129

Suggestions to avoid electrical incidents (cont.)

7. Before work, use the instrument to test whether the metal parts in the work area are live, and at the same time, use appropriate personal protective equipment and tools (see Appendix 14 of the Code of Practice for the Electricity (Wiring) Regulations).

8. In order to avoid live work, the power supply of the relevant device should be cut off, isolated and locked before electrical work, and the metal parts of the relevant device should be tested for live electricity.

Suggestions to avoid electrical incidents (cont.)

9. If cutting off the power supply may affect daily operations, the Registered Electrical Contractor (REC) should negotiate with the owner or management company and try to cut off the power supply of the relevant installations so that the project can be carried out without electricity.

10. If live work is unavoidable, such as testing, the assessor should conduct an electric safety assessment in advance for conducting live work (see Appendix 15 of the Code of Practice for the Electricity (Wiring) Regulations).

131

Suggestions to avoid electrical incidents (cont.)

11. After the fixed electrical installation is completed (including repair, modification or addition work), it must be inspected, tested and issued a certificate by a registered electrical worker before it is energized for use to confirm that the installation complies with the Electricity (Wiring) Regulations Requirements.

132

1. Power off first,
2. confirm
3. performs works

Safety is the key

133

Safety Precautions for Work on High Voltage Installation

1. Appoint a responsible person to take charge of the operation and maintenance work of the installation
2. No person, except a responsible person or a person having the permission of the responsible person, should enter a HV enclosure, and where danger may exist, no one should enter a HV enclosure unaccompanied.
3. Every HV enclosure should be kept locked. The access door key for entering the HV enclosures should be kept under the control of a responsible person according to Code 4H(2)
4. Works on high voltage installations should follow the instructions stated in Code 4H.

Appendix 15 – Conditions and Safety Precautions for Live Work

1. Live work should not be performed unless:
   i. it is necessary in the interests of safety, whether or not electrical safety, for the work to be performed while the electrical equipment is energized (e.g. work on hospital equipment); or
   ii. a supply of electricity is essential for the proper performance of the electrical measurement (e.g. testing and fault finding); or
   iii. there is no reasonable alternative to perform the electrical work by live work (e.g. widespread outages of a building would occur if live work is not allowed); or
   iv. it is justified and approved by the registered electrical worker, registered electrical contractor and owner of the installation (e.g. serious public inconvenience would arise from isolating the circuits).

Appendix 15 – Conditions and Safety Precautions for Live Work

2. Where live work is unavoidable, adequate precautions should be taken to avoid danger for work involving the handling of energized parts or working within touchable distance, direct or indirect, of energized parts at LV. The following precautions are to be taken:

    i. work on energized LV electrical equipment should be done only by registered electrical workers who are by virtue of knowledge and training competent to be allowed to carry out live work;

    ii. electrical safety assessment should be carried out by responsible assessor on the performance of the live work (sample provided);

    iii. personal protective equipment (including insulating gloves, safety shoes and insulating mat) and testing equipment appropriate to the performance of the live work should be properly used by the person performing the electrical work;

Appendix 15 – Conditions and Safety Precautions for Live Work

i. screen or other means to avoid danger from inadvertent contact with energized conductors should be provided;

ii. fixing of warning notices for repair, barriers and screens;

iii. the duration and the extent of the live work should be minimized as far as practicable; and

iv. the isolation point of the electricity supply for the subject electrical equipment has been clearly identified.

Registered Electrical Worker, Registered professional engineer (EE or BS), or Registered Safety Officer

Registered Electrical Worker

Appendix 15B (Sample)

Electrical Safety Assessment Form (電力安全評估表格)

Form No. (表格編號) : .....

Date (日期) : ..... Time (時間) : ..... Location (地點) : .....

Details of work to be done (要進行的工程詳情) : .....

由負責評估者評估
Assessed by Responsible Assessor (姓名) (Name) ..... (簽署) (Signed) .....

由負責工程人士接收
Received by Person in-charge (姓名) (Name) ..... (簽署) (Signed) .....

在帶電工作時，如上游開關裝置已停用但中性導體沒有隔離時，請只需填寫 "甲部"。如上游開關裝置沒有停用時，請只需填寫 "乙部"
Please complete Part A only when carrying out LIVE work with switching device at upstream "OFF" but neutral conductor not isolated. Complete Part B only when carrying out LIVE work with switching device at upstream "ON"

甲部 Part A

帶電工作時上游開關器件狀況
(Condition of Switching Device at Upstream under LIVE WORK)

☑ 請在適當方格加上剔號
Please tick in the appropriate boxes

☐ 三極及中性線連桿空氣斷路器停用中 TPN ACB "OFF"
☐ 三極及中性線連桿熔斷器開關掣停用中 TPN Fused-Switch "OFF"
☐ 單極開關掣停用中 Single-Pole Switch "OFF"
☐ 三極及中性線連桿模製外殼斷路器停用中 TPNMCCB "OFF"
☐ 單極微型斷路器停用中 Single -pole MCB "OFF"
☐ 其他 (請註明)
Others (Please specify) .....

注意：CAUTION：	➤ **小心中性導體有電**	**BEWARE OF ELECTRICITY AT NEUTRAL CONDUCTORS**
	➤ **請確認電力器具已放電**	**ENSURE ELECTRICAL EQUIPMENT HAS BEEN DISCHARGED**
	➤ **請確認相性導體已截斷電源**	**ENSURE PHASE CONDUCTORS HAVE BEEN MADE DEAD**
	➤ **請使用適當的個人保護設備**	**PLEASE USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE)**

乙部 Part B

帶電工作時上游開關器件狀況

(Condition of Switching Device at Upstream under LIVE WORK)

☑ 請在適當方格加上剔號
Please tick in the appropriate boxes

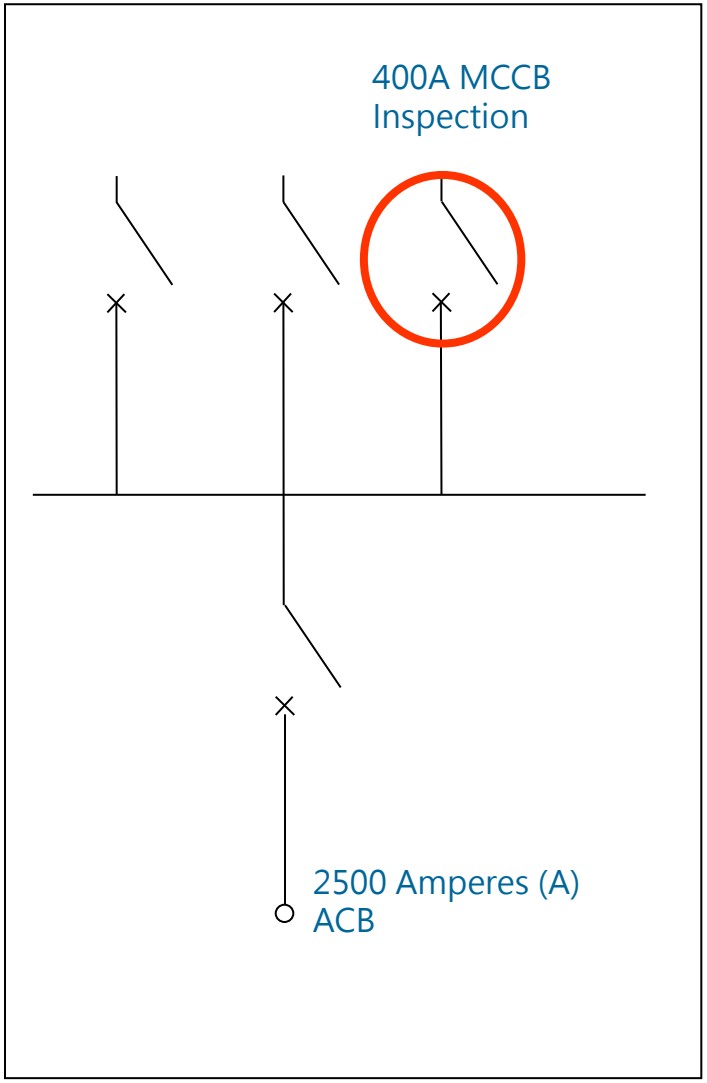
- ☐ 四極空氣斷路器供電中 4P ACB "ON"
- ☐ 四極模製外殼斷路器供電中 4P MCCB "ON"
- ☐ 三極及中性線連桿空氣斷路器供電中 TPN ACB "ON"
- ☐ 三極及中性線連桿模製外殼斷路器供電中 TPNMCCB "ON"
- ☐ 三極及中性線連桿熔斷器開關掣供電中 TPN Fused-Switch "ON"
- ☐ 雙極微型斷路器供電中 Double-pole MCB "ON"
- ☐ 雙極開關掣供電中 Double-pole Switch "ON"
- ☐ 單極微型斷路器供電中 Single -pole MCB "ON"
- ☐ 單極開關掣供電中 Single-Pole Switch "ON"
- ☐ 其他 (請註明)
  Others (Please specify).....

在帶電工作時，沒有將上游開關器件停用的原因 (見附錄 15)
Reasons for not keeping switching device at upstream "ON" when carrying out LIVE work (see Appendix 15)

- ☐ 從安全的角度（不論是否從電力安全的角度）來看，有需要在電力器具帶電時進行工作（例如就醫院設備進行電力工作）
  It is necessary in the interests of safety, whether or not electrical safety, for the work to be performed while the electrical equipment is energized (e.g. work on hospital equipment)
- ☐ 有必要提供電力，以便適當地進行電力量度（例如進行測試及故障探測）
  A supply of electricity is essential for the proper performance of the electrical measurement (e.g. testing and fault finding)
- ☐ 除了在器具帶電的情況下進行電力工作外，沒有其他切實可行的選擇（例如不獲准進行帶電工作，樓宇會出現廣泛停電）
  There is no reasonable alternative to perform the electrical work by live work (e.g. widespread outages of a building would occur if live work is not allowed)
- ☐ 註冊電業工程人員、註冊電業承辦商及電力裝置擁有人均認為進行這類工作理由充份（例如隔離電路會為公眾帶來嚴重不便），並批准進行這類工作
  It is justified and approved by the registered electrical worker, registered electrical contractor and owner of the installation (e.g. serious public inconvenience would arise from isolating the circuits)

評估結果 Evaluation Results	受影響人士及環境 Personsand Environment Affected	建議控制措施 Control Measures Suggested	備註 Remark
☐ 觸電 Electric Shock ☐ 爆炸 Explosion ☐ 其他 (請註明) Others (Please specify)	☐ 協助帶電工作的人仕 Persons assisting for LIVE WORK ☐ 其他不涉及帶電工作的工人 (例如：建築工人、水喉匠、等等) Other workersnot involving in the LIVE WORK (e.g. builders, plumbers, etc.) ☐ 附近的住戶 / 租戶 Tenants in the vicinity ☐ 附近的公眾 Public in the vicinity ☐ 其他 (請註明) Others (Please specify)	☐ 使用適當的帶電作業用手持工具 (見附錄 14) The use of appropriate hand tools for live working (see Appendix 14) ☐ 使用適當的帶電作業用絕緣材料手套 (見附錄 14) The use of appropriate gloves for live working (see Appendix 14) ☐ 使用適當的安全鞋靴 (見附錄 14) The use of appropriatesafety footwear (see Appendix 14) ☐ 使用適當的電工用絕緣材料蓆 (見附錄 14) The use of appropriate matting for electrical purpose (see Appendix 14) ☐ 使用適當的電工用絕緣材料毯 (見附錄 14) The use of appropriate blankets for electrical purpose (see Appendix 14) ☐ 使用屏障或其他設備，以防止無意觸及帶電部分 The use of screen or other means to avoid inadvertent contact with live parts ☐ 不應將工具放在電氣設施之內或頂部上 No equipment should be placed inside or at top of electric facilities ☐ 其他 (請註明) Others (Please specify)	

Appendix 15 – Sample of Electrical Safety Assessment Form (Live Works)



Appendix 15 – Sample of Electrical Safety Assessment Form (Live Works)

Appendix 15B
(Sample)

Electrical Safety Assessment Form (電力安全評估表格) Form No. (表格編號) : 01

Date (日期) : 12/7/2016 Time (時間) : 14:00 Location (地點) : E & M Hospital

Details of work to be done (要進行的工程詳情) : Inspection of MCCB 400A

由負責評估者評估
Assessed by Responsible Assessor (姓名) (Name) Chan Tai Man (簽署) (Signed)

由負責工程人士接收
Received by Person in-charge (姓名) (Name) Lee Tai Wai (簽署) (Signed)

在帶電工作時，如上游開關裝置已停用但中性導體沒有隔離時，請只需填寫 "甲部"。如上游開關裝置沒有停用時，請只需填寫 "乙部"
Please complete Part A only when carrying out LIVE work with switching device at upstream "OFF" but neutral conductor not isolated.Complete Part B only when carrying out LIVE work with switching device at upstream "ON"

甲部 Part A

帶電工作時上游開關器件狀況
(Condition of Switching Device at Upstream under LIVE WORK)

☑ 請在適當方格加上剔號
Please tick in the appropriate boxes

☐ 三極及中性線連桿空氣斷路器停用中 TPN ACB "OFF"
☐ 三極及中性線連桿熔斷器開關掣停用中 TPN Fused-Switch "OFF"
☐ 單極開關掣停用中 Single-Pole Switch "OFF"
☐ 三極及中性線連桿模製外殼斷路器停用中 TPNMCCB "OFF"
☐ 單極微型斷路器停用中 Single -pole MCB "OFF"
☐ 其他 (請註明)
Others (Please specify) .....

注意 : CAUTION :	➤ 小心中性導體有電	**BEWARE OF ELECTRICITY AT NEUTRAL CONDUCTORS**
	➤ 請確認電力器具已放電	**ENSURE ELECTRICAL EQUIPMENT HAS BEEN DISCHARGED**
	➤ 請確認相性導體已截斷電源	**ENSURE PHASE CONDUCTORS HAVE BEEN MADE DEAD**
	➤ 請使用適當的個人保護設備	**PLEASE USE APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE)**

乙部 Part B

帶電工作時上游開關器件狀況

(Condition of Switching Device at Upstream under LIVE WORK)

☑ 請在適當方格加上剔號
Please tick in the appropriate boxes

- ☐ 四極空氣斷路器供電中 4P ACB "ON"
- ☑ 四極模製外殼斷路器供電中 4P MCCB "ON"
- ☐ 三極及中性線連桿空氣斷路器供電中 TPN ACB "ON"
- ☐ 三極及中性線連桿模製外殼斷路器供電中 TPNMCCB "ON"
- ☐ 三極及中性線連桿熔斷器開關掣供電中 TPN Fused-Switch "ON"
- ☐ 雙極微型斷路器供電中 Double-pole MCB "ON"
- ☐ 雙極開關掣供電中 Double-pole Switch "ON"
- ☐ 單極微型斷路器供電中 Single -pole MCB "ON"
- ☐ 單極開關掣供電中 Single-Pole Switch "ON"
- ☐ 其他 (請註明)
  Others (Please specify).....

在帶電工作時，沒有將上游開關器件停用的原因 (見附錄 15)
Reasons for not keeping switching device at upstream "ON" when carrying out LIVE work (see Appendix 15)

- ☑ 從安全的角度（不論是否從電力安全的角度）來看，有需要在電力器具帶電時進行工作（例如就醫院設備進行電力工作）
  It is necessary in the interests of safety, whether or not electrical safety, for the work to be performed while the electrical equipment is energized (e.g. work on hospital equipment)
- ☐ 有必要提供電力，以便適當地進行電力量度（例如進行測試及故障探測）
  A supply of electricity is essential for the proper performance of the electrical measurement (e.g. testing and fault finding)
- ☐ 除了在器具帶電的情況下進行電力工作外，沒有其他切實可行的選擇（例如不獲准進行帶電工作，樓宇會出現廣泛停電）
  There is no reasonable alternative to perform the electrical work by live work (e.g. widespread outages of a building would occur if live work is not allowed)
- ☐ 註冊電業工程人員、註冊電業承辦商及電力裝置擁有人均認為進行這類工作理由充份（例如隔離電路會為公眾帶來嚴重不便），並批准進行這類工作
  It is justified and approved by the registered electrical worker, registered electrical contractor and owner of the installation (e.g. serious public inconvenience would arise from isolating the circuits)

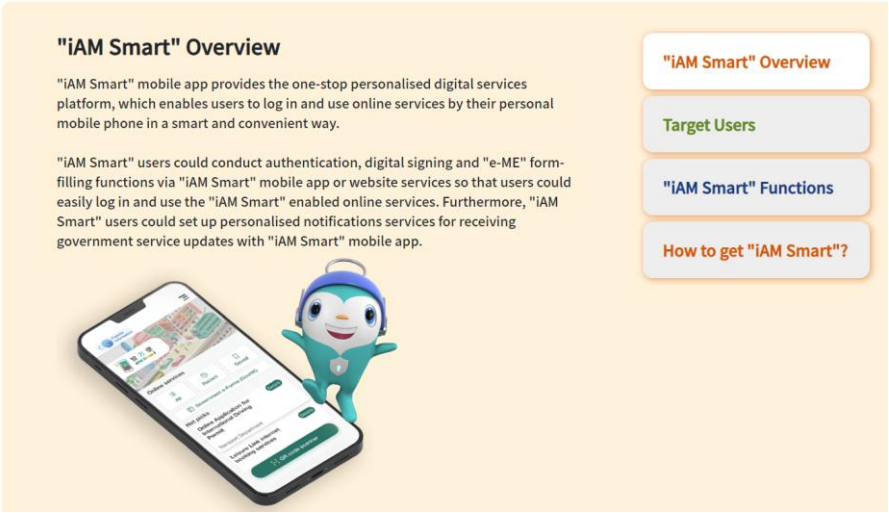
評估結果 Evaluation Results	受影響人士及環境 Personsand Environment Affected	建議控制措施 Control Measures Suggested	備註 Remark
☑ 觸電 Electric Shock	☑ 協助帶電工作的人仕 Persons assisting for LIVE WORK	☑ 使用適當的帶電作業用手持工具 (見附錄 14) The use of appropriate hand tools for live working (see Appendix 14)	
☐ 爆炸 Explosion	☐ 其他不涉及帶電工作的工人 (例如：建築工人、水喉匠、等等) Other workersnot involving in the LIVE WORK (e.g. builders, plumbers, etc.)	☑ 使用適當的帶電作業用絕緣材料手套 (見附錄 14) The use of appropriate gloves for live working (see Appendix 14)	
☐ 其他 (請註明) Others (Please specify)	☑ 附近的住戶 / 租戶 Tenants in the vicinity	☑ 使用適當的安全鞋靴 (見附錄 14) The use of appropriatesafety footwear (see Appendix 14)	
.....	☑ 附近的公眾 Public in the vicinity	☑ 使用適當的電工用絕緣材料蓆 (見附錄 14) The use of appropriate matting for electrical purpose (see Appendix 14)	
.....	☐ 其他 (請註明) Others (Please specify)	☑ 使用適當的電工用絕緣材料毯 (見附錄 14) The use of appropriate blankets for electrical purpose (see Appendix 14)	
.....	.....	☑ 使用屏障或其他設備，以防止無意觸及帶電部分 The use of screen or other means to avoid inadvertent contact with live parts	
.....	.....	☑ 不應將工具放在電氣設施之內或頂部上 No equipment should be placed inside or at top of electric facilities	
.....	.....	☐ 其他 (請註明) Others (Please specify)	

EMSD (Regulatory Services) Web Based Registration Services

https://wbrs.emsd.gov.hk/wbrs/#/

iAM Smart +

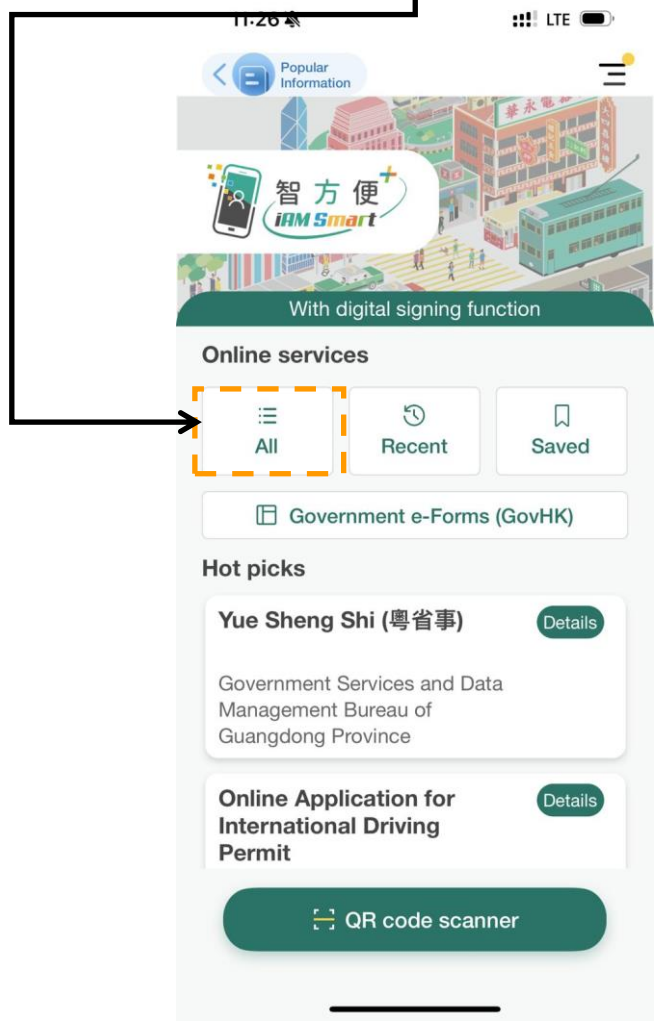
- **Renewal application for Electrical Worker Registration** can be applied online through "EMSD (Regulatory Services) Web Based Registration Services" and "iAM Smart +" by mobile phone or computer.



e-Application

1. Open “iAM smart” app

2. Press “All ”

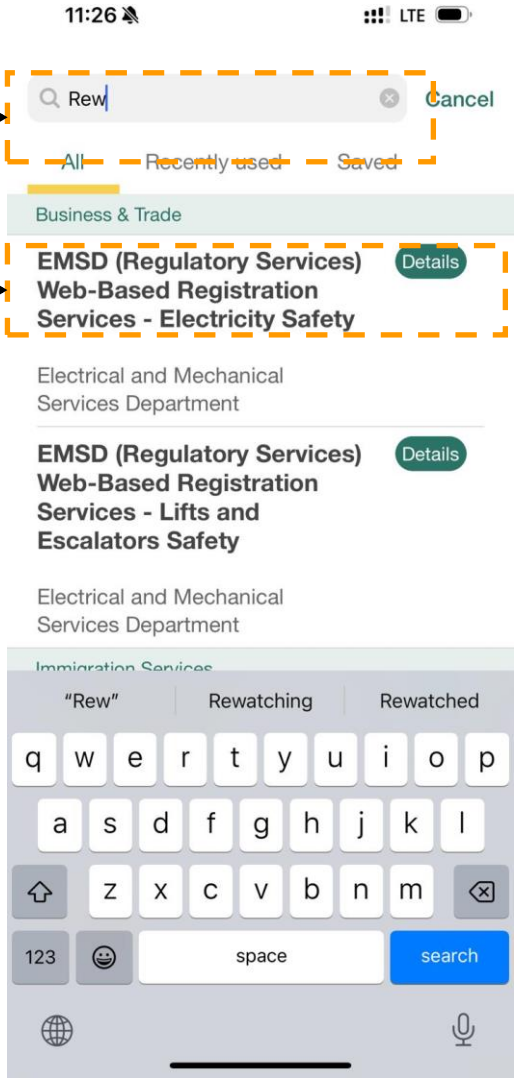


e-Application

3. Enter “REW” in search field

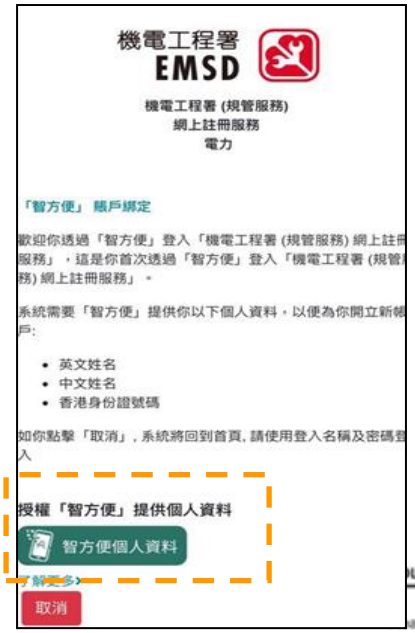
4. “EMSD (regulatory Services) Web-Based Registration Services – Electricity Safety

Press “ detail ”

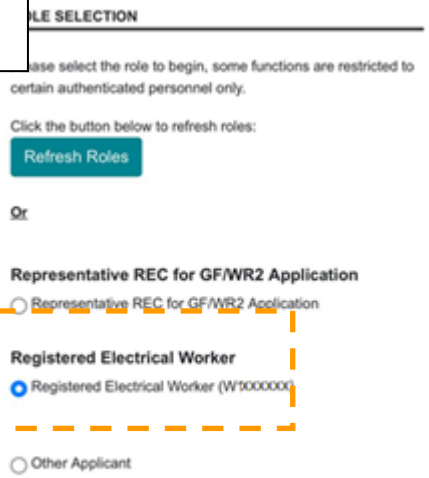


e-Application

5. If you have not bonded your registered electrical worker information, please press “iAM smart information”



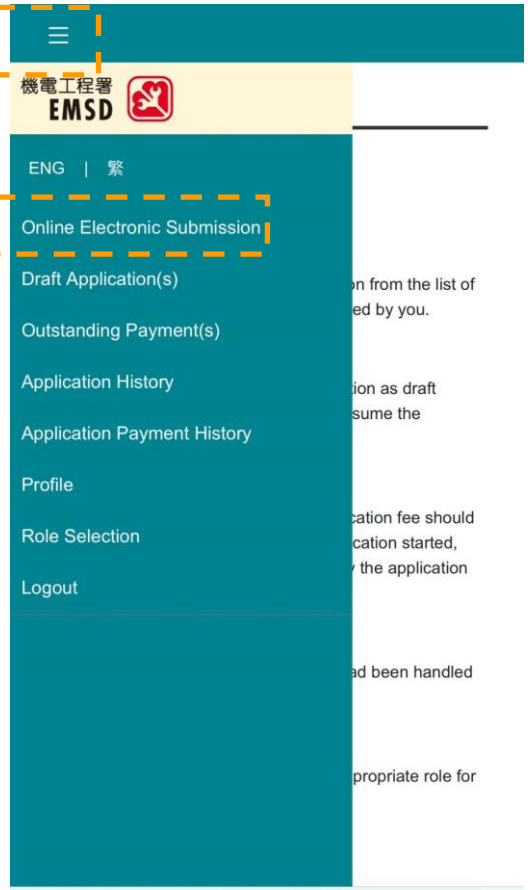
6. If you are Registered Electrical Worker, please select – “Registered Electrical Worker” (WXXXXXX)



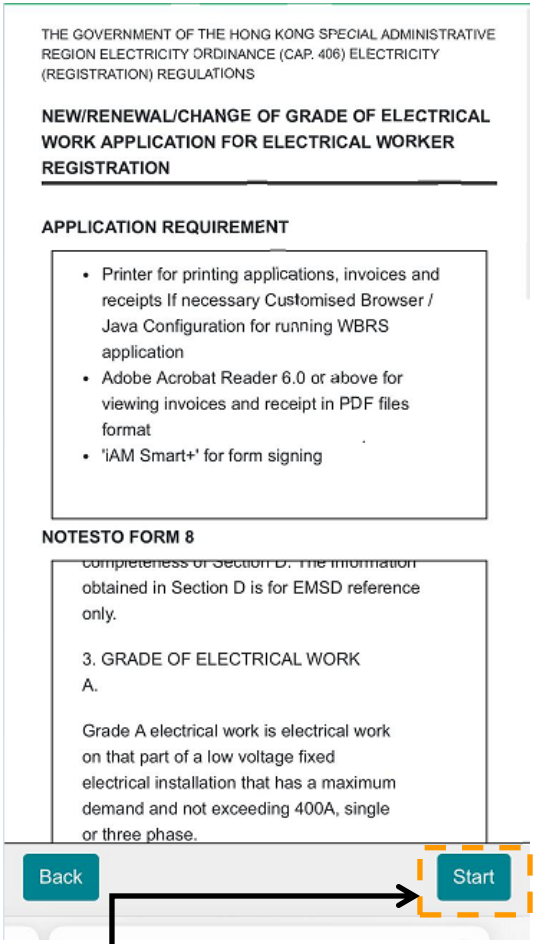
e-Application

7. Select “ 三 ”at left upper corner.

8. Select “Online Electronic Submission”



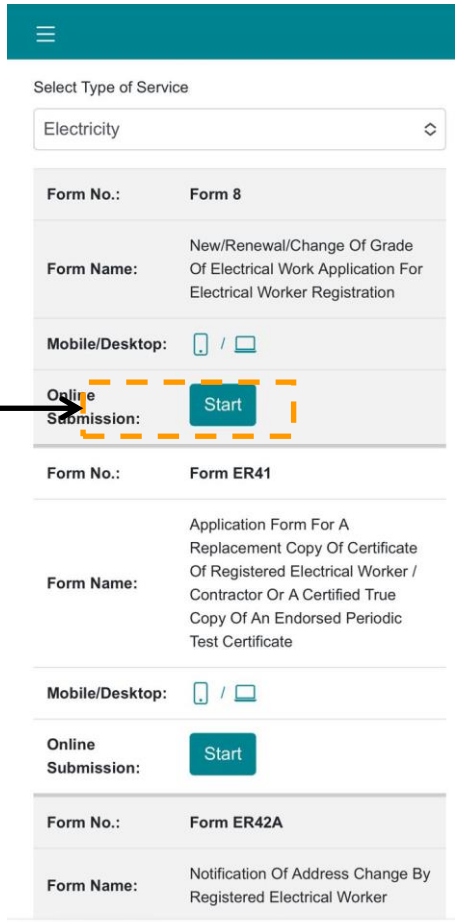
e-Application



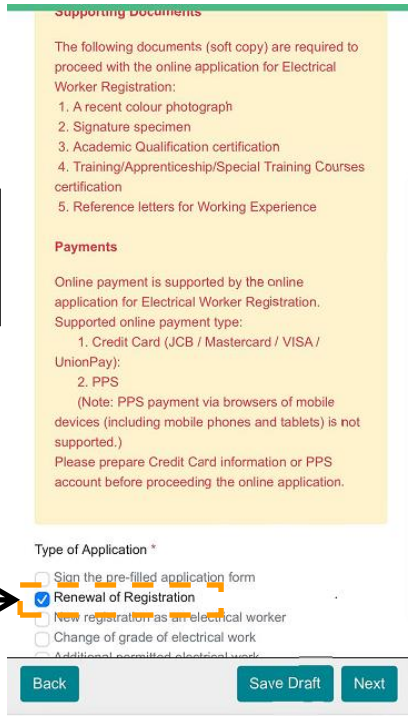
9. Press “Start” after reading application requirement and notes.

e-Application

10. Press “Start” in Form 8



11. Select “Renewal of Registration”



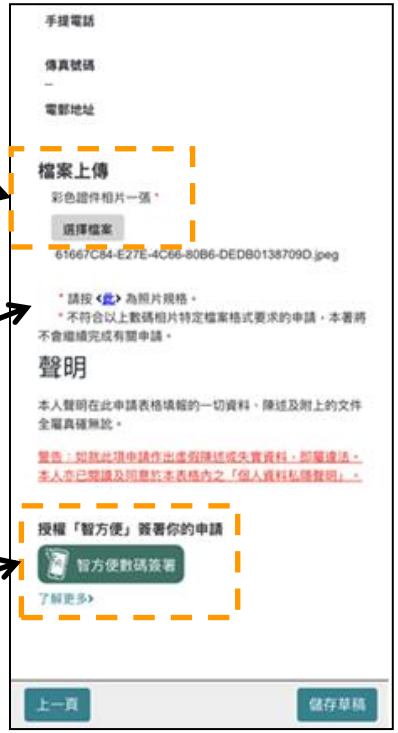
e-Application

12. Read personal information and declaration, then confirm

13. Read the requirement and upload photo

14. Upload your signature

15. Press iAM Smart digital signature

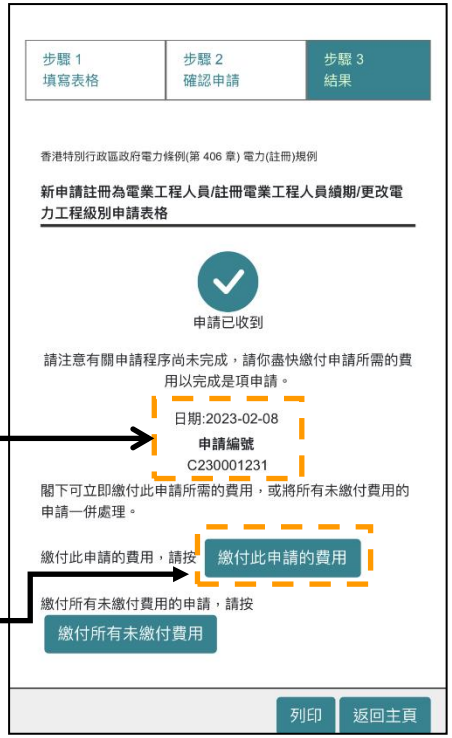


e-Application

16. Execute digital signature

17. An Application no. would be displayed

18. Payment



e-Application

19. Payment successful page would be displayed after the transcantion.

Receipt would be sent to your email box

20. Receipt could also be downloaded here

iAM Smart +

To experience the e-Application, you have to apply "iAM Smart +"

- Application requirements

Hong Kong Identity Card

Personal mobile phone (Enabled biometric authentication functions and installed "IAM Smart" App)

Email address

- Registration Locations

  - Please refer to information on web site of iAM Smart as below

    https://www.iamsmart.gov.hk/en/reg_location.html

Q&A