

電力快訊

ELECTRICITY NEWS

Updated Forms for the Electricity Ordinance

Inspection and Testing of Renewable Energy Power System Installations

Specific Safety Requirements for 13A Extension Units

Safety Tips for Electric Water Heaters

Substation/Switchroom Management

The Code of Practice on Working near Electricity Supply Lines (2018 Edition)

勤保養 安全用
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《電力快訊》的中英文版本可於以上網頁瀏覽。

The English and Chinese versions of the Electricity News may be viewed on the above website.

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Editor's Notes



Thanks to your continued support, this issue of Electricity News is now the 31st since its launch. We have much to offer in this issue, which will be introduced by the lively and vivid cartoon characters of electrical products appearing in recent TV commercials of the Electrical and Mechanical Services Department. The feature articles cover the updated forms for the Electricity Ordinance and the inspection and testing of renewable energy power system installations. As to the news-in-brief column, it features gentle reminders to registered electrical contractors and registered electrical workers, specific safety requirements for 13A extension units, safety tips for using electric water heaters, substation/switchroom management, the Code of Practice on Working near Electricity Supply Lines (2018 Edition), third phase of Mandatory Energy Efficiency Labelling Scheme and wise selecting LED lamps - Voluntary Energy Efficiency Labelling Scheme. And what's more, the Electrical Safety Quiz column challenges you to puzzle the answers out, in the hope of adding fun to your reading and enhancing your knowledge about electrical safety.

Feature Article



Updated Forms for the Electricity Ordinance

As stated in the Special Issue of Electricity News earlier, the forms (e.g. Forms WR1, WR2, etc.) in relation to the Electricity Ordinance and its subsidiary regulations have been updated to electronic fillable versions and have been available for use from April 2019. In this issue of Electricity News, we would like to remind everyone again that the new and old versions of the relevant forms (except Form WR2) are both applicable, but for Form WR2, the Electrical and Mechanical Services Department (EMSD) only accepts and endorses the new periodic test certificate (i.e. new Form WR2) with effect from July 2019. To meet the needs arising from the implementation of the Feed-in Tariff (FiT) Scheme, one of the new requirements in the new Form WR2 is that owners of electrical installations shall indicate whether the associated renewable energy generating facility (e.g. solar photovoltaic system installation) is included in the periodic test of their fixed electrical installations.

All the new forms can be identified from the additional EMSD logo at the top left corner and the revision number (4/2019) printed at the bottom right corner (see samples on right side for the difference between the new and old forms).

Form WR2 (NEW)

The image shows the top portion of Form WR2 (NEW). On the left is the EMSD logo with the text: 機電工程署 EMSD, 表格 WR2, 香港特別行政區政府, 電力條例(第 406 章), 電力(線路)規例, 定期測試證明書. In the center, it says: FORM WR2, THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION, ELECTRICITY ORDINANCE (CAP. 406), ELECTRICITY (WIRING) REGULATIONS, PERIODIC TEST CERTIFICATE. On the right, there is a box for '此欄不用填寫 For Official use only' with fields for '收件日期: Receipt date:' and '收據編號: Receipt Number:'. Below the logo and title, there are instructions in Chinese and English: (注意: 填寫此申請表格前請參閱「表格 WR2 備註」, 申請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 WR2". The applicant 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. At the bottom right, there is a red box containing the text: EMSD/EL/46 (04/2019). Below the main form area, there is a section labeled '第 2 部 Part 2' with a large box containing the text: 此欄由機電工程署加簽 To be endorsed by E.M.S.D. Below this box, there is a note: * 請將不適用於的刪去 Delete whichever is inapplicable.

Form WR2 (OLD)

The image shows the top portion of Form WR2 (OLD). On the left, there is a red box containing the text: 香港特別行政區政府, 電力條例 (第 406 章), 電力(線路)規例, 定期測試證明書——表格 WR2. In the center, it says: THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION, ELECTRICITY ORDINANCE (CHAPTER 406), ELECTRICITY (WIRING) REGULATIONS, PERIODIC TEST CERTIFICATE—FORM WR2. On the right, there is a box for '此欄不用填寫 For Official use only' with fields for '收件日期: Receipt date:' and '收據編號: Receipt Number:'. Below the logo and title, there are instructions in Chinese and English: (注意: 請參閱「表格 WR2 備註」, 各適當項目須以正楷填寫。) (Note: Please read carefully the "NOTES TO FORM WR2" and complete all appropriate items in BLOCK LETTERS.) At the bottom right, there is a red box containing the text: EMSD/LE46. Below the main form area, there is a section labeled '第 2 部 PART 2' with a large box containing the text: 此欄由機電工程署加簽 To be endorsed by E.M.S.D. Below this box, there is a note: * 請將不適用於的刪去 Delete whichever is inapplicable.

In order that owners of electrical installations / registered electrical contractors carry out periodic inspection for the associated renewable energy generating facility of a fixed electrical installation within the specified time under the law to ensure electrical safety, an item has been added to Part 3 of the new Form WR2 as a reminder. Owners of electrical installations shall indicate whether a renewable energy generating facility is installed in their premises and whether the facility is included in the periodic test. Owners of electrical installations shall have their fixed electrical installations (together with the associated renewable energy generating facility) inspected, tested and certified periodically if a renewable energy generating facility is installed in the premises. The registered electrical contractor engaged by owners of electrical installations shall carry out the periodic test and submit Form WR2 with all relevant test results (e.g. test data and checklists) to the EMSD for endorsement. The sample of Form WR2 on right side is an example showing how to complete the part on renewable energy generating facility.

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

⋮

以上房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 / N]

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)]

* 請將不適用的刪去 Delete whichever is inapplicable

All the new forms have been available for use from April 2019. Please note that the EMSD only accepts and endorses the new periodic test certificate (i.e. new Form WR2) with effect from July 2019.

The new forms can be obtained from:

- (i) the EMSD website: <http://www.emsd.gov.hk> (Electricity Safety → How to Apply → Public Forms);
- (ii) the Government Forms website: www.info.gov.hk/forms; or
- (iii) Registration and Permit Office, EMSD, G/F, 3 Kai Shing Street, Kowloon, Hong Kong.

Feature Article

Inspection and Testing of Renewable Energy Power System Installations

Under the new Scheme of Control Agreements entered into with the Government, the two power companies introduced the FiT Scheme to encourage the development of distributed renewable energy. In order to provide technical guidelines on how to inspect and test renewable energy power system installations, the EMSD has worked with the trade to compile a Checklist for Inspection and Testing of Renewable Energy Power System Installations (Checklist), which is applicable to (i) inspection and testing of newly installed renewable energy power system installations and (ii) periodic inspection and testing of renewable energy power system installations. Similar to the checklists under Code 22D of Code of Practice for the Electricity (Wiring) Regulations, this Checklist, together with the test data recorded, is generally acceptable as proper records in relation to the Electricity Ordinance.

The Checklist can be downloaded from the EMSD website: <http://www.emsd.gov.hk> (Electricity Safety → Publications → Guidance Notes / Guidelines → Electrical Installations → Sample Checklist for Inspection and Testing of Renewable Energy Power System Installations).

News-in-brief 1

Remind REWs to Complete the CPD Course Early

To upgrade the standard of registered electrical workers (REWs), the Continuing Professional Development (CPD) Scheme for REWs has been included as a requirement for renewal of registration starting 1 January 2012. According to the CPD Scheme, all REWs are required to have completed two modules of training, including Module 1: Legislative and Safety Requirements and Module 2: Technical Knowledge, before submitting their renewal application.

In order to fulfil the requirement for renewal of REW registration, it is recommended that REWs should complete the necessary CPD training as early as possible.

For details of the CPD Scheme, please visit EMSD website at www.emsd.gov.hk (Electricity Safety → CPD Scheme for REW).

News-in-brief 2

Remind RECs and REWs to Renew Their Registration on Time

The Electricity (Registration) Regulations stipulate that REWs and registered electrical contractors (RECs) should submit to the Electrical and Mechanical Services Department applications for registration renewal at least one month in advance, but no more than four months before the expiry date of the current registration. Renewal applications submitted before or after the above-mentioned period will not be considered. REWs and RECs are reminded again to apply for renewal of registration within the above-mentioned period. Applications submitted after the expiry date of the current registration will be treated as new registration applications, and will be assessed in accordance with the statutory requirements of the day. These include requiring REWs applying for registration to possess recognised academic qualifications in electrical engineering and electrical work experience. If an applicant does not possess the required academic qualifications and is thus considered to be unable to fulfil the relevant registration requirements, his application will be rejected regardless of his previous registration history.



Specific Safety Requirements for 13A Extension Units

13A extension units (Figure 1) are electrical products owned by most households. According to the Electrical Products (Safety) Regulation, 13A extension units sold by suppliers in Hong Kong must comply with the applicable specific safety requirements.

The specific safety requirements for 13A extension units can be illustrated in three parts (namely plug, flexible cord and socket). Some of the salient points of the relevant requirements are listed below. Prior to the sale of a model of 13A extension unit, the supplier should consult the product manufacturer to ascertain whether the model complies with the specific safety requirements specified in the Electrical Products (Safety) Regulation.

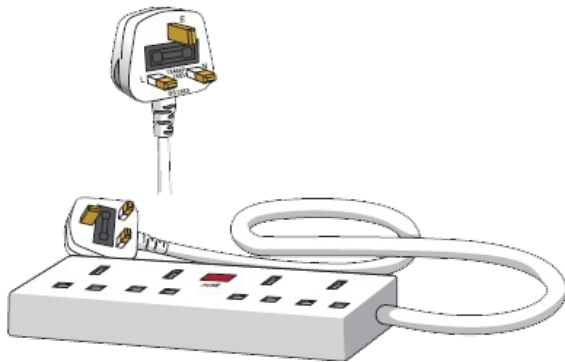


Figure 1: 13A extension unit

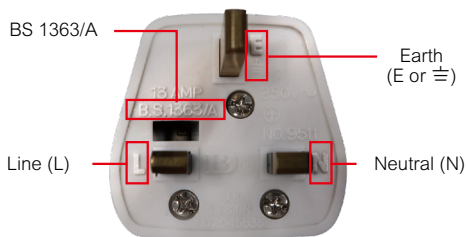


Figure 2: 13A plug



Figure 3: The back of a 13A plug

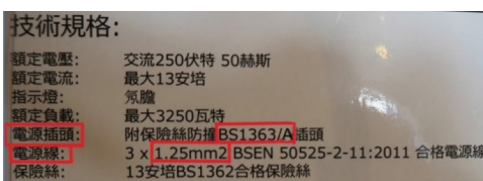


Figure 4: Descriptions on the packaging of a 13A extension unit

Plug:

- (1) A 3-rectangular-pin fused plug rated at 13A, which is designed and constructed to BS 1363/A Part 1.
- (2) The plug shall be legibly and durably marked with
 - (a) the number of BS (i.e. BS 1363/A) to which the plug conforms (Figure 2);
 - (b) its rated current in amperes (A) and identities of plug pins (line (L), neutral (N) and earth (E or ≡)) in accordance with BS 1363/A Part 1 (Figure 2); and
 - (c) the word "FUSED" or "FUZE" or equivalent symbol (≡) (Figure 3) together with the standard to which the fuse-link conforms and the rated current of the fuse-link in amperes (A) in accordance with BS 1363/A Part 1.

Flexible cord:

- (1) A 3-core flexible cord with a conductor of a minimum cross sectional area of 1.25 mm².
- (2) In respect of marking and labelling, the nominal cross sectional area of a conductor and the relevant standard to which a flexible cord conforms shall be marked on the outer sheath of the flexible cord at appropriate intervals.

Socket:

- (1) The 13A socket shall be designed and constructed to BS 1363/A Part 2.
- (2) Each socket of the extension unit shall be designed to accommodate only one type of plug.
- (3) The word "FUSED" or "FUZE" or equivalent symbol (≡) together with the information regarding the minimum cross sectional area of the flexible cord shall be marked on the external surface of the socket portion of an extension unit.
- (4) Safety shutters, to be automatically operated by the insertion of the earthing pin, shall be provided for all the sockets.

When purchasing a 13A extension unit, members of the public can check if the descriptions on the packaging (Figure 4) indicate that, for example, it complies with the British Standards (BS 1363/A) and the core of the flexible cord is of a cross sectional area not less than 1.25 mm².

News-in-brief 4

Safety Tips for Electric Water Heaters

The household electric water heaters available in the market mainly include instantaneous type, shower storage type and unvented thermal storage type (also known as high-pressure type) electric water heaters (Figure 5). While these electric water heaters were equipped with appropriate safety devices, incidents involving electric water heaters did occasionally occur in the past. Investigation results showed that the main causes of the incidents are improper installation and lack of maintenance.

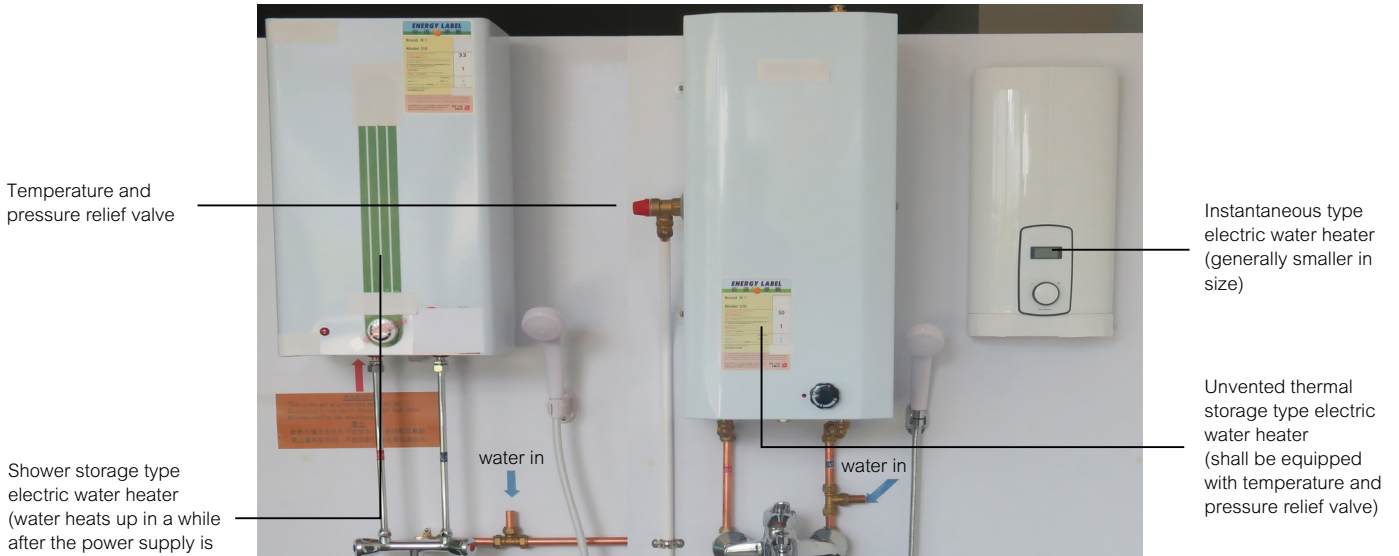


Figure 5

The shower storage type electric water heater is designed in a way that when it is in use, the water inside the storage tank undergoes slight thermal expansion after being heated up, and the pressure inside the storage tank can be released through the shower head. However, the pressure built up inside the storage tank cannot be released if an on/off control valve (see Figure 6) is added at the outlet pipe. Should the thermal cutout fails to disconnect the power supply in time, the storage tank may burst and result in danger when it cannot withstand the increasing pressure.

When installing the pipework, do not connect the outlet pipe of a shower storage type electric water heater to a wash basin or bath tub (see Figure 7). Otherwise, the outlet pipe will be blocked and leading to excessive pressure being built up inside the water heater and the occurrence of accident. In addition, the mixing faucet of a shower storage type electric water heater is not a normal valve. The pressure generated by the heating of water in the storage tank can be released through the shower head via the mixing faucet. Therefore, we must choose a suitable mixing faucet.

Besides, shower heads with on/off control valves (see Figure 8) currently available in the market are definitely not suitable for installation on shower storage type electric water heaters because the on/off control valves will make such water heaters unable to release their pressure through the shower heads. This may result in explosion due to excessive pressure.

On the installation of electric water heaters, the water pipes and fixed electrical installations shall be installed by a licensed plumber and a registered electrical worker (REW) respectively. When installing the fixed electrical installations of an electric water heater, the REW shall ensure that the electric water heater is effectively earthed, and shall check whether the electric water heater (including the thermostat) operates properly.

When carrying out maintenance work for electric water heaters, the REW should follow the manufacturer's instructions, and pay particular attention to whether the electrical installations and pipes are properly installed and whether the thermostat operates normally. The agent or manufacturer concerned should be consulted if necessary. If the outlet pipe of the water heater is found to be improperly installed or the type of shower head connected is found to be incorrect, the REW should notify the user to fix the problem immediately so as to prevent accidents.

If you have any enquiries on the safety of electrical products, please call 1823 or e-mail to info@emsd.gov.hk.

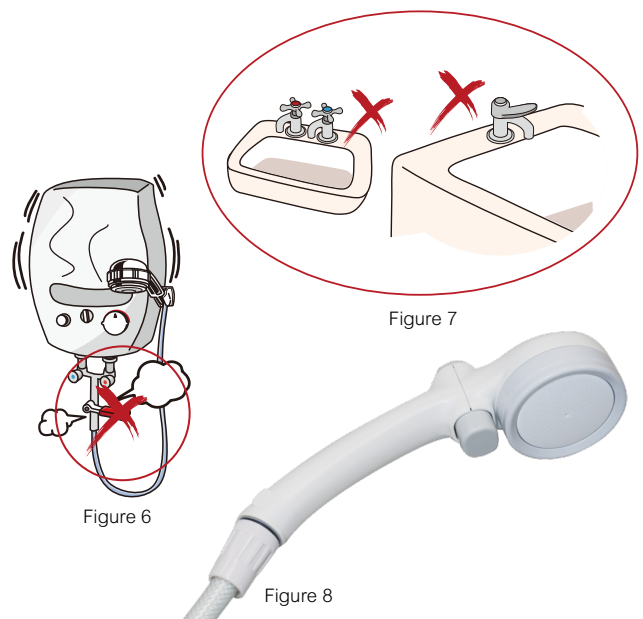


Figure 6

Figure 7

Figure 8



According to the Electricity (Wiring) Regulations, the owner and person in control of a substation or switchroom should ensure that unauthorised entry into his substation or switchroom is prevented. Therefore, anyone who has obtained permission from the owner or person in control of a switchroom may enter the switchroom. Nevertheless, only REWs or persons under the supervision of REWs are allowed to carry out electrical work.

As "switching operations" are not electrical work, they do not necessarily have to be carried out by REWs. However, if failure occurs in an electrical installation, the owner shall engage an REC and an REW to check and properly repair the installation.

According to section 4F(4) of the Code of Practice for the Electricity (Wiring) Regulations, substations/switchrooms must not be used for storage purposes except for placing equipment used for the operation and maintenance of switchgear.

In addition, in accordance with sections 17A(1) and 17A(2) of the Code of Practice for the Electricity (Wiring) Regulations, warning notices shall be posted on the outside of the doors of the substations/switchrooms.

Note: For interpretation of substation/switchroom, please refer to the Electricity (Wiring) Regulations.



The Code of Practice on Working near Electricity Supply Lines (2018 Edition) (CoP) has taken effect since 29 December 2018 and supersedes all previous editions

To facilitate a better understanding of the contents of the new CoP and more effective use of it by the trade, the EMSD has prepared a series of new publicity leaflets and reference documents, including:

- (1) Publicity leaflets (Figures 9, 10 and 11):** Illustrate in the form of serial diagrams the reasonable steps and reasonable measures to be taken when working near electricity supply lines;
- (2) Templates of underground cable detection reports (fillable versions):** Standardise the format of underground cable detection reports to facilitate completion and storage by the trade; and
- (3) Waterproof publicity sticker (Figure 12):** Adopt QR code technology which makes it easier for the trade to download the latest information (such as templates of underground cable detection reports, publicity leaflets, CoP, etc.) on working near electricity supply lines.

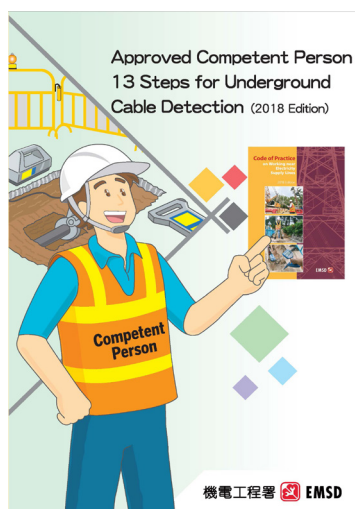


Figure 9

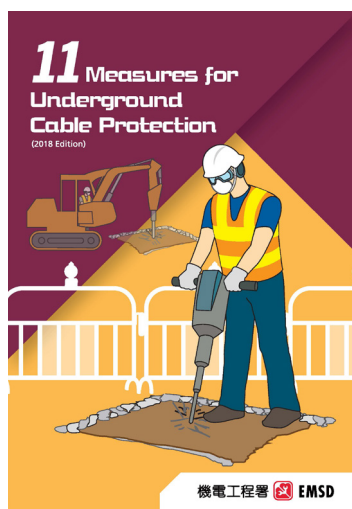


Figure 10

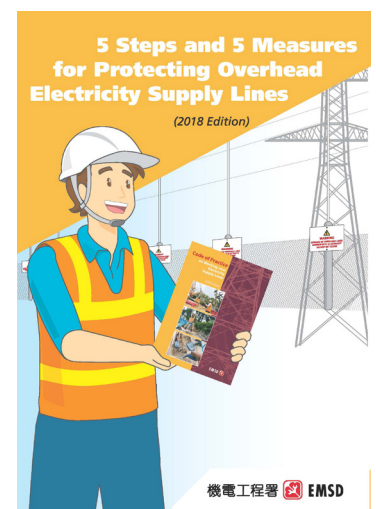


Figure 11

The above publicity leaflets and reference documents can be downloaded for free at the following website:

www.emsd.gov.hk → Menu → Electricity Safety → New Edition of Code of Practice on Working near Electricity Supply Lines

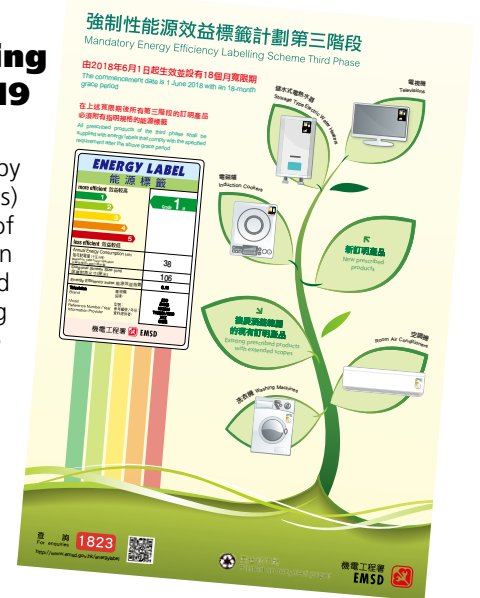


Figure 12

News-in-brief 7

Third Phase of Mandatory Energy Efficiency Labelling Scheme to be Fully Implemented on 1 December 2019

The third phase of Mandatory Energy Efficiency Labelling Scheme (MEELS) introduced by the Government through amendments to the Energy Efficiency (Labelling of Products) Ordinance took effect on 1 June 2018. The third phase of MEELS covers five types of electrical products, namely televisions, storage type electric water heaters, induction cookers, room air conditioners for cooling and heating (covering both heating and cooling functions), and washing machines (with a rated washing capacity exceeding 7 kg but not exceeding 10 kg). To enable the trade to make necessary preparation, there is a grace period of 18 months for the third phase of MEELS, i.e. from 1 December 2019 onwards, manufacturers or importers are required to attach energy labels in the specified format on the above-mentioned products before supplying them in Hong Kong. For details, please visit the website of "Energy Label Net" (<https://www.emsd.gov.hk/energylabel>).



News-in-brief 8

Wise selecting LED lamps - Voluntary Energy Efficiency Labelling Scheme

We often heard about LED lightings, but how much do we know about it? LED (light-emitting diode) light is a two-lead semiconductor light source. The main features of LED lighting are listed as follow :

- **Brightness:** "Lumen" is the measuring unit for LED lightings rather than the unit in "Watt". In general, one "Watt" of LED lamp could deliver 100 Lumen, the following table could be served as a reference.

Considerations for procurement of LED lamp	LED Lamp	Compact fluorescent lamp (CFL)	Incandescent lamp (ILB)
Wattage (W)	8	12	60
Lumen (lm)	770	700	710
Average lamp life (hours)	15,000	8,000	1,000

- **Lamp life:** Taking a LED lamp with life of 15,000 hours as an example, if it lit for 6 hours daily, the operation of LED lamp could be last up to 7 years, which is in twice of CFL's life and ten times of incandescent ILB's life.
- **Dimming:** Some LED lamps have the dimming function by the method of Pulse Width Modulation (PWM) or Constant Current Reduction (CCR).
- **Color Temperature:** The temperature of light source from LED lamp is expressed in Kelvin, using the symbol K.
- **Energy efficiency:** As compared with incandescent lamps (ILBs) and compact fluorescent lamps (CFLs), LED lamps are almost ten times in efficiency than ILBs and about twice in efficiency than CFLs.



In the aspect of energy efficiency, more than 80 models of LED lamp are currently registered under the Voluntary Energy Efficiency Labelling Schemes (VEELS) which adopting energy efficiency grading (see diagram on left side). The grading of LED lamp is classified into 5 grades. Grade 1 representing the most energy efficient while Grade 5 representing the least energy efficient. It could facilitate the public in choosing the energy efficient LED lamps and raise the public awareness on energy saving.

Voluntary Energy Efficiency Label of LED Lamp

For details of VEELS for LED lamps, please visit the website of

https://www.emsd.gov.hk/en/energy_efficiency/voluntary_energy_efficiency_labelling_scheme/index.html



Electrical Safety Quiz

Q1 When should the application be made if the old Form WR2 is used?

- a) Only the new Form WR2 will be accepted since July 2019
- b) Between 1 July 2019 and 31 December 2019
- c) After 1 January 2020
- d) None of the above

Q2 Where can I obtain the new forms for Electricity Ordinance?

- a) The EMSD website: <http://www.emsd.gov.hk> (Electricity Safety → How to Apply → Public Forms)
- b) The Government Forms website: www.info.gov.hk/forms
- c) Registration and Permit Office, EMSD, G/F, 3 Kai Shing Street, Kowloon, Hong Kong
- d) All of the above

Q3 Which of the following should we take note of when installing a shower storage type electric water heater?

- a) Do not install shower head with an on/off control valve on an electric water heater
- b) Do not connect the outlet pipe of an electric water heater to a wash basin or bath tub when installing pipes
- c) When installing an electric water heater, the water pipes and fixed electrical installations shall be installed by a licensed plumber and an REW respectively
- d) All of the above

Q4 Which of the following is the measuring unit for "lighting brightness"?

- a) Watt
- b) Kelvin
- c) Lumen
- d) Volt

Answers: 1a, 2d, 3d, 4c

Readers' Feedback and Update

We look forward to receiving your valuable feedback for continuous improvement so that the contents of Electricity News and the services of the EMSD can better meet your needs. Please complete the form below and return it to the Electricity Legislation Division of the EMSD by post, fax or e-mail (contact details at the bottom of this page) on or before 23 January 2020. Thank you.

To: Electricity Legislation Division, EMSD

Overall, I have the following comments on Issue 31 of Electricity News (please put a "✓" in the appropriate box):

	Strongly Agree	Agree	Average	Disagree	Strongly Disagree
• Interesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Beneficial to my present or future work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• At an appropriate level of complexity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Enriches my knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I hope the following subjects will be included in the next issue:

	Strongly Agree	Agree	Average	Disagree	Strongly Disagree
• Satisfied with the services of EMSD's Electricity Legislation Division	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other comments^[1] :

In support of environmental protection, Electricity News will be sent to the registered e-mail addresses^[2] of all registered electrical workers and registered electrical contractors.



Personal Particulars^[3] :

Name: _____ (Mr./Ms.) Registration No.: _____

Address: _____ (new)

Tel. No: _____ (new) E-mail Address: _____ (new)

Note: [1] Please use a separate sheet if the space provided is insufficient. [2] If you change your e-mail address or wish to receive the printed version of Electricity News in the future, please notify us by post, fax or e-mail. [3] The personal particulars provided in this form will only be used for opinion surveys of Electricity News and the updating of registration information. All data will be kept confidential and dealt with by authorised persons. You have the right to apply in writing for access to and correction of your personal information. Please put "✓" in the boxes if there are any changes to your particulars.