

電力快訊

ELECTRICITY NEWS

同心抗疫 Together,
We Fight the Virus!



**Protective Measures in Place
Electricity Safety in Pools**

**Online Application for Licences and
Endorsement of Certificates
and Digital E&M Licences**

**Technical Points to Note about the
Installation of R32 Domestic
Air-conditioners**

Responsibilities of Competent Persons






Property Management Seminar 2021

**Install Electric Water Heaters Properly
Stay Safe Without Worries**

● www.emsd.gov.hk

《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.

Contents



-  Experience Share 1
-  Feature Article 2-4
-  News-in-brief 4-6
-  Electrical Safety Quiz 7
-  Readers' Feedback and Update 7





Experience Share


Sandy shares her experience of using air-conditioners


Sandy is a young artiste as well as a professional yoga instructor. Looking at her, you can't tell how versatile she is.


 : Reporter  : Sandy


 : Summer is approaching. What is your best way to relieve the heat from practising yoga in the hot summer?

 : It's definitely enjoying yoga in a comfortable air-conditioned environment with an air-conditioner having Grade 1 energy label, which is set and maintained at room temperature between 24°C and 26°C.

 : In recent years, an increasing number of air-conditioners using mildly flammable refrigerant R32 are available on the market. Do you know how to identify such models?

 : Of course I do. Such air-conditioners should have a label of "flammable substance" on the body to remind the maintenance personnel and users.

 : I don't expect you to know about air-conditioners in addition to yoga. In this issue, we will share the points to note on using such air-conditioners. Please root for us.

 : I have some knowledge because I also run an air-conditioning cleaning service company with my friends. I will surely pay attention to the Electricity News.



Artiste Sandy

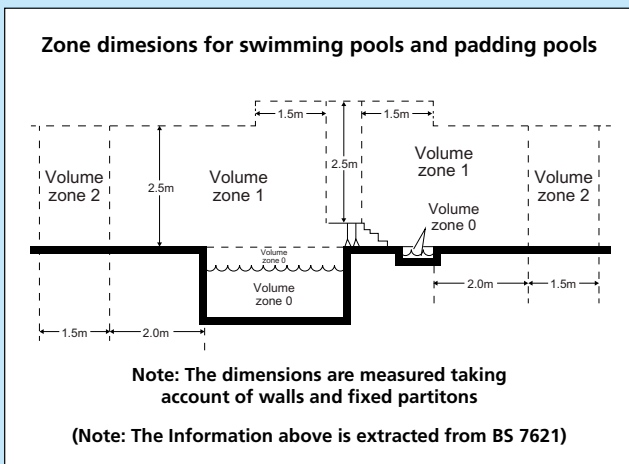
Feature Article 1

Protective Measures in Place Electricity Safety in Pools

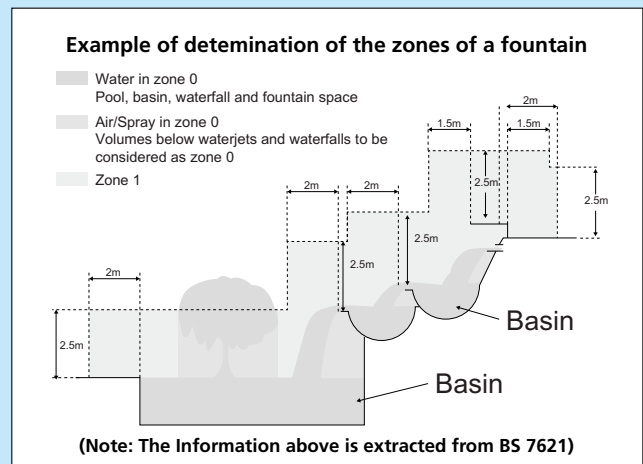
Many people know that they should not touch any electrical appliances, sockets or switches with wet hands, but have you ever wondered how electrical installations in a swimming pool or a fountain can meet the electricity safety requirements? To ensure the safety of electrical installations in swimming pools or fountains, Code 26M of the Code of Practice for the Electricity (Wiring) Regulations (hereinafter referred to as the "Code of Practice") sets out some special requirements for electrical installations in the above places.

The space of a swimming pool is divided into 3 zones (i.e. Zones 0, 1 and 2) and the space of a fountain is divided into 2 zones (i.e. Zones 0 and 1). Zone 0 is the interior of the basin of the swimming pool or fountain, including any recesses in its walls or floors, basins for foot cleaning and waterjets or waterfalls and the space below them. Since the risk of electric shock is higher in this zone than those in Zones 1 and 2, we should understand the key requirements of this zone first. For detailed guidelines and descriptions on the determination of the zones, please refer to Figures 26(3), 26(4), 26(5) and 26(6) of the Code of Practice.

Code of Practice for the Electricity (Wiring) Regulations

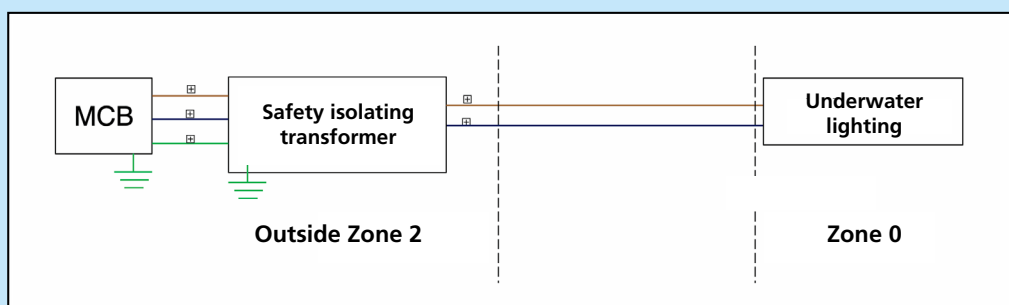


Code 26 - Figure 26(3)



Code 26 - Figure 26(6)

In accordance with Code 26M(4)(a), electrical installations in Zone 0 of a swimming pool (such as underwater lighting) are only permitted to be protected by separated extra-low voltage (SELV) at a nominal voltage not exceeding 12V AC r.m.s. or 30V ripple-free DC and the source for SELV should be installed outside Zones 0, 1 and 2. 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. Put it simply, if a safety isolating transformer conforming to IEC 61558-2-6 or equivalent is installed, the source requirement for SELV will be fulfilled and the supply circuit of the safety isolating transformer can be protected by a residual current device (RCD) with a residual operating current not exceeding 30mA.



Arrangement for "SELV" supply for general AC underwater lighting (Secondary extra-low voltage wiring should not be earthed)

In accordance with Code 26M(6)(a), one or more of the following protective measures should be employed for electrical installations (such as underwater lighting) in Zone 0 of a fountain:

1. Use SELV as the source for the circuit;
2. Protect the source for the circuit by an RCD; or
3. The source for electrical separation supplies only one item of current using equipment and is installed outside Zones 0 and 1.

If SELV is employed as a protective measure, electrical installations in Zone 0 of the fountain are only permitted to be protected by SELV at a nominal voltage not exceeding 50V AC r.m.s. or 120V ripple-free DC and the source for SELV should be installed outside Zones 0 and 1. Similarly, if a safety isolating transformer conforming to IEC 61558-2-6 or equivalent is installed, the source requirement for SELV will be fulfilled.

Recent random inspections by the EMSD staff for the endorsement of periodic test certificates revealed that the circuits of the underwater lighting in Zone 0 of some swimming pools failed to comply with the SELV requirements set out in Code 26M of the Code of Practice. For example, earthing connection was made between the primary and secondary sides of the safety isolating transformer, thus electrical separation from earth and from other systems was not fulfilled. To enhance electrical safety, the owners of such installations should engage registered electrical contractors to carry out inspections for the SELV circuits, the scope of which should include ensuring no earthing connection between the primary and secondary sides of the safety isolating transformer is made and testing the insulation resistance between the primary and secondary sides of the isolating transformer for compliance with the requirements set out in Table 21(1) of the Code of Practice.

In accordance with Regulation 20 of the Electricity (Wiring) Regulations, periodic inspection, testing and certification shall be carried out at least once every 5 years (i.e. 5-year periodic inspection) for fixed electrical installations if the approved loading of the fixed electrical installations in a building exceeds 100A, or if the fixed electrical installations are located in a hotel or school. Most of the electrical installations for swimming pools and/or fountains are electrical installations covered by the 5-year periodic inspection requirement. The owners of such installations are required to engage registered electrical contractors to carry out the 5-year periodic inspection for their fixed electrical installations, including those for swimming pools and/or fountains. The EMSD has consulted the trade and provided a new checklist on the items to be tested for the trade to understand how inspection and testing of the electrical installations in swimming pools and fountains should be carried out to meet the requirements set out in the Code of Practice. If electrical installations in swimming pools and/or fountains are covered in periodic testing, a checklist of the items tested must be attached when an application for endorsement of the periodic test certificate is submitted. The checklist can be downloaded from the EMSD website: <http://www.emsd.gov.hk>

(Electrical Safety > Publications > Guidance Notes/Guidelines > Electrical Installations > Additional Checklist for Inspection and Testing of Electrical Installation of Swimming Pool and Fountain)

Feature Article 2

Online Application for Licences and Endorsement of Certificates and Digital E&M Licences

Introduction

The Electricity Ordinance (Cap. 406) regulates the registration of a wide range of individuals, companies and facilities such as electrical workers, electrical contractors, generating facilities, competent persons, recognised certification bodies and recognised manufacturers. In the past, applicants had to submit a duly completed form with relevant supporting documents and application fee by post or in person to the Registration and Permit Office of the Electrical and Mechanical Services Department (EMSD) for processing of their registration.

To tie in with the Government's "Be the Smart Regulator" Programme, the EMSD implemented a series of innovation and technology initiatives in phases in 2021 and 2022 to provide online registration application services, which enable the trades to submit applications more conveniently and efficiently, and help enhance the EMSD's processing efficiency.



The relevant electronic licences can be displayed on the EMSD website through a QR code

Online application for licences or certificates of registration and endorsement of periodic test certificates

With effect from 30 June 2022, applications for registration and renewal of registration of electrical workers, electrical contractors, generating facilities, competent persons, recognised certification bodies or recognised manufacturers, as well as applications for endorsement of periodic test certificates (Form WR2) may be made online. Applicants may log on to the EMSD's "Web-based Registration Services" (WBRS) through the link of our "E&M Trade App" or directly on computer, and then complete the application form, upload the required documents and perform digital signing with the "iAM Smart+". The WBRS supports the "e-ME" Form Filling function of "iAM Smart+", which automatically inputs relevant data for applicants, making it more easily to complete the process.



Online submission of application fees

Apart from submission of application forms, applicants may also effect payment of application fees by credit card or PPS through the WBRS. Upon completion of the online payment, the system will automatically issue an electronic receipt for the applicant to download for reference or record.

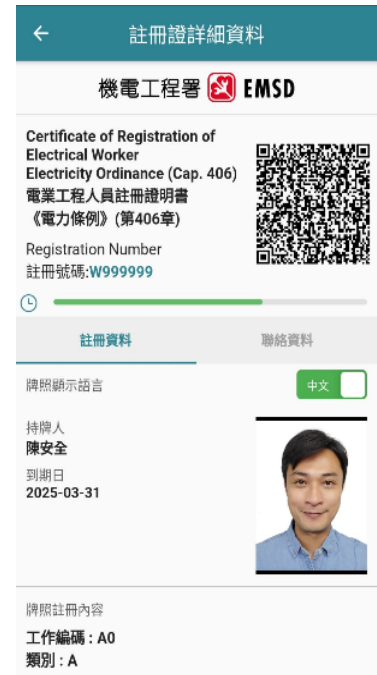
Such services enable members of the public and practitioners in various trades to complete the entire process of application for the above licences, registration certificates or other certificates (i.e. submission of application, payment and collection of the licence or certificate) and submit specified forms online without having to visit the EMSD in person, saving time and bringing convenience to them.

Details of the above services have been uploaded onto the EMSD's website at www.emsd.gov.hk/en/electronic_submissions/index.html

Digital E&M Licences

With effect from 30 June this year, the EMSD has issued both digital E&M licences and traditional physical certificates of registration to electrical workers and competent persons applying for registration or renewal of their registration. They may log onto the "E&M Trade App" with their smartphones or other mobile devices to view their registration information and show their digital E&M licences to the public. The digital E&M licences contain dynamic QR codes for anti-forgery purposes. Members of the public may scan the QR code to verify the registration information of the workers.

For details on how to activate the digital E&M licences through the "E&M Trade App", please watch the video at the following link.



Digital E&M Licences

https://www.emsd.gov.hk/minisites/elicence/elicence_video_guide.mp4

News-in-brief 1

Technical Points to Note about the Installation of R32 Domestic Air-conditioners

In recent years, many suppliers of domestic air-conditioners have launched models using the mildly flammable R32 refrigerant. The body of this type of air-conditioners should bear the "flammable substance" label for easy identification by users and technicians. In choosing and installing air-conditioners, attention should be paid to whether the requirements on minimum room area and minimum installation height regarding the chosen model as specified by the manufacturer are met. Furthermore, installation, inspection and maintenance of the air-conditioners should be carried out by the suppliers or technicians who have received professional training in relation to mildly flammable refrigerants.

Technicians should note that as the working pressure of R32 refrigerant is generally nearly 50% higher than that of the old R22 refrigerant and slightly higher than that of the commonly used R410A refrigerant, copper pipes with a thickness of 0.8mm or above which can withstand high pressure refrigerant should be adopted. For details of the specification requirements, please refer to the installation manuals of the products. Moreover, technicians should also use tools and vacuum pumps specifically designed for R32 refrigerant when installing the air-conditioners.

In addition, regarding the installation of R32 split-type air-conditioners, if the length of the refrigerant copper pipe connecting the outdoor unit and indoor unit exceeds the pre-charge length of refrigerant specified by the manufacturer, and additional charging of refrigerant is required, technicians should ensure that the total refrigerant charge amount meets the requirements on minimum room area specified by the manufacturer. After the installation is completed, technicians should also fill in the original refrigerant charge amount, additional refrigerant charge amount and total refrigerant charge amount in the refrigerant charge table (Table 1) of the outdoor unit for future reference of maintenance staff.

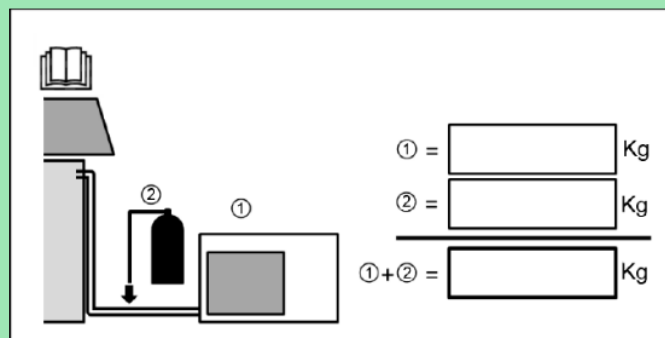


Table 1: Refrigerant Charge Table (example for reference)

News-in-brief 2

Responsibilities of Competent Persons

According to the Electricity Supply Lines (Protection) Regulation and the requirements of its code of practice, before commencement of works in the vicinity of an underground electricity cable (U/G cable), the working party shall take all reasonable steps to ascertain the existence of any such U/G cable within the proposed works site and its vicinity as shown in the cable plan from the electricity supplier. Prior to commencement of works, the working party shall obtain a cable plan from the electricity supplier. If the cable plan indicates the existence of any U/G cable within the proposed works site or within a specified distance from the works site, the working party shall appoint a competent person to carry out the cable detection work.

The appointed competent person shall refer to the cable plan from the electricity supplier and undertake an investigation to ascertain the existence of any U/G cable within the proposed works site and its vicinity, and determine the alignment and depth of such U/G cables. The competent person shall provide the working party with a written report of the findings from the investigation and give a briefing on it as required by the working party. The competent person shall undertake the investigation and supervise the excavation of trial holes in person, and shall not delegate the function and duty of the investigation to another person. Assistance from the electricity supplier shall be sought if difficulty is encountered in locating the U/G cables.

The competent person shall carry out the investigation in a manner that does not cause damage to or impair the operation of the U/G cables when ascertaining the existence, alignment and depth of U/G cables. If the competent person fails to comply with the above requirements, his or her approval as a competent person may be suspended.



Competent persons may scan the QR code to visit the departmental webpage for the leaflet and video on 13 Steps for Underground Cable Detection.

News-in-brief 3

Property Management Seminar 2021

The Property Management Seminar 2021 was successfully held on 7 December 2021 in the Lecture Hall of the Hong Kong Science Museum. More than 130 trade representatives attended the seminar. The EMSD representatives presented to the participants an array of information on electrical and mechanical safety and energy efficiency in buildings, including Statutory Requirements for Fixed Electrical Installations Periodic Testing and Maintenance of Generating Facilities, and Feed-in Tariff and the Latest Development of Photovoltaic Systems in Hong Kong. In addition, representatives of the Land Registry (LR) were invited to the seminar to explain the details of the Property Alert service.

Presentation materials have been uploaded to the website below for reference:

https://www.emsd.gov.hk/tc/about_us/public_education/conferences_and_seminars/property_management_seminar/



From left to right:

Mr CHAN Kwok-hei (Engineer of the EMSD), Mr TSE Tak-sang, Dickson (Land Registration Officer I of the LR), Ms WU Sze-man, Vian (Land Registration Officer II of the LR), Mr Mentor CHEUNG (Engineer of the EMSD), Mr CHU Kei-ming, Barry (Assistant Director of the EMSD), Mr Steve HU (Senior Consultant of the Occupational Safety and Health Council), Mr FONG Kam-wai, Kelvin (Engineer of the EMSD), Mr WONG Wai-ching (Engineer of the EMSD)

News-in-brief 4 

Install Electric Water Heaters Properly Stay Safe Without Worries

Under the Electrical Products (Safety) Regulation, suppliers of electric water heaters are required to ensure that the products supplied in Hong Kong comply with the relevant requirements of the Regulation and international safety standards, and have been issued with Certificates of Safety Compliance, whereas users are required to engage electrical contractors registered with the Electrical and Mechanical Services Department and designated persons as required by the Water Supplies Department for the installation of electric water heaters and water pipes.

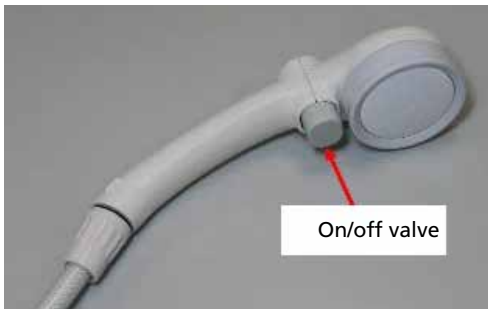


As for the installation of electric water heaters, a registered electrical worker (REW) must ensure that the electric water heater is effectively earthed and all the components of the heater (including the thermostat) operate properly. Besides, the REW must connect the heater to an individual final circuit or a three-phase supply based on its rated current. In addition, if the electric water heater is going to be installed at a height not exceeding 2.25 m in the bathroom, it must be protected by a residual current device (RCD). °



Any electric heater to be installed at a height not exceeding 2.25 m must be protected by a RCD

As for the installation of “shower storage type” electric water heaters, the designated person must bear in mind that no on/off control valve should be installed at the water outlet, and a shower head with an on-off valve should not be installed on a “shower storage type” electric water heater.



Don't install a shower head with an on-off control valve on a “shower storage type” electric water heater.



Don't install an on/off control valve at the water outlet.



“storage type” electric water heaters supplied in Hong Kong must be the listed models with reference numbers and energy labels.

ENERGY LABEL	
能源標籤	
more efficient 效益較高	
1	Grade 1 級
2	
3	
4	
5	
less efficient 效益較低	
Annual Standby Loss Energy Consumption (watt) 每年備用耗電量(千瓦小時) Based on sitting time of 1800 hrs/yr 以每年備用時數為1800小時計算	40
Storage Capacity (litre) 儲水容量(公升)	25
Storage Type 儲水式 Electric Water Heater 電熱水器	
Brand 品牌:	ABC 某某牌
Model 型號:	HR1234
Reference Number / Year Information Provider 參考編號 / 年份: 資料提供者:	E180123 / 2018 XYZ 某某某
機電工程署 EMSD	

- 1 Grade 1 products are the most energy efficient (green) and Grade 5 products are the least energy efficient (red).
- 2 Compare the annual standby loss energy consumption of models and see how much you could save.
- 3 Storage Capacity.

Electrical Safety Quiz

1. Which of the following is/are the major function(s) of the app "E&M Trade"?

- (i). To receive updates on safety, codes of practice or other relevant documents
 - (ii). To provide online licence/registration applications and other online services
 - (iii). To provide information on training and online application services
- a) (i) b) (ii) and (iii) c) (i) and (iii) d) All of the above

2. Which of the following descriptions of the working pressure of air-conditioners using R32 refrigerant is/are correct?

- a) R32 refrigerant has a lower working pressure than R22 refrigerant
- b) R32 refrigerant has a higher working pressure than R22 refrigerant
- c) R32 refrigerant has the same working pressure as R22 refrigerant
- d) None of the above

3. What is the purpose of the QR code contained in the E-licence issued by "EMSD (Regulatory Services) Web-based Registration Services" (WBRs)?

- a) For tutorials on online registration application services
- b) For accessing the EMSD website
- c) For registration eligibility verification
- d) For "iAM Smart+" telephone hotline service

4. Which of the following is the duty of a competent person when carrying out the cable detection work?

- a) Undertake the investigation and supervise the excavation of trial holes in person
- b) Provide a written report of findings from the investigation
- c) Give a briefing on the written report as required by the working party
- d) All of the above

5. Which of the following will be considered as non-compliance with the requirements during an inspection of the underwater lighting in Zone 0 of a swimming pool by the registered electrical contractor? (Electricity News)

- a) Earthing connection is found between the primary and secondary sides of the safety isolating transformer
- b) The source for SELV is installed outside Zones 0, 1 and 2
- c) A safety isolating transformer to IEC 61558-2-6 is installed
- d) The underwater lighting is protected by SELV at a nominal voltage not exceeding 12V AC r.m.s.

6. Which "iAM Smart+" function(s) is/are supported by the "EMSD (Regulatory Services) Web-based Registration Services" (WBRs) platform?

- (i). "e-ME" Form Filling
 - (ii). Authentication
 - (iii). Digital Signing
- (a) (i) (b) (i) and (ii)
 (c) (i) and (iii) (d) All of the above

Ans.: 1d · 2b · 3c · 4d · 5a · 6d

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 (please see the contact details at the bottom of this page) on or before 30 November 2022. Thank you.

To: Electricity Legislation Division, EMSD

Overall, I have the following comments on Issue 35 of Electricity News (please put a "√" in the appropriate boxes):

	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 to 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 the 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 only 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: _____
 Tel. No.: _____ E-mail Address: _____ (New)

Note:

[1] Please use a separate sheet if the space provided is insufficient. [2] If your e-mail address is changed 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.

