

Here is the footage from the Hong Kong Housing Authority "Site Safety Seminar for Capital Works New Works Contracts" which was held on 27 April 2017. The speaker is Mr. Ho Wai Keung, Electrical and Mechanical Engineer/ Consumer Installations 1 of EMSD. His presentation topic is the Code of Practice for the Electricity (Wiring) Regulations 2015 Edition.

Hello everyone, let me introduce myself first.

I am Ho Wai Keung, an electrical and mechanical Engineer of Electricity Legislation Division, EMSD. I am glad to introduce you the revised content of the Code of Practice for the Electricity (Wiring) Regulations (hereinafter referred to as the "Code of Practice") which was published on December 31, 2015. Today's presentation includes background information and revised content of "Code of Practice".

"Code of Practice" is a technical guideline provided by the Electrical and Mechanical Services Department.

Produced to clarify the requirements of the Electricity (Wiring) Regulations. Electrical works in Hong Kong need to meet safety and technical guideline of "Code of Practice".

In the "Electricity Ordinance" (Chapter 406), it is purely a legal document.

For those of us who do practical work may not really understand the legal requirements.

In view of this, the Electrical and Mechanical Services Department has developed this "Code of Practice".

Most content involves technical aspects.

If workers work in accordance with the requirements of this "Code of Practice", they can meet the requirements of "Electricity Ordinance".

The content of "Code of Practice" is consistent with international safety standards and developments with the latest technology in the electrical engineering industry

The first edition of "Code of Practice" was published in 1992 and revised every five to six years.

The latest revision was printed in 2015 and is the fourth revision.

There are a lot of preparatory works before this revision.

At the end of 2013, the working group was established.

The main purpose is to collect opinions from various stakeholders in the electricity industry.

Hope to collect more comments and produce more pragmatic guidelines.

Members of the working group include different organizations in the industry, trade unions, chambers of commerce, academic groups.

For example, Institution of Engineers. Academic institutions are also included, like Hong Kong Institute of Vocational Education, University of Hong Kong and Polytechnic University.

Of course, Hongkong Electric Company and China Light and Power Company are included.

And government departments, mainly engineering departments, including Architectural Services Department, Water Supplies Department, Drainage Services Department,

Housing Authority and Labour Department.

After telling the background, let me explain the main revised content now.

The first amendment is "Code 1", mainly covering the effective date.

The 2015 edition of the "Code of Practice" "Code 1":

"Code of Practice" applies to devices

that are completed and connected to the electricity supply on or after 30 November 30, 2017.

Please see the slide of the screen.

Before 30 November 2017, new and old codes are valid at the same time.

But on or after this day, all electrical installations must meet the requirements of the new code.

There are still seven to eight months from 30 November 2017.

Although there are still more than seven months to implement the new code, the design or project in progress now also need to pay attention to the fact that the old and new codes are effective at the same time.

However, if the project is expected to get the electric light company to approve its power supply application after 30 November, then design of the project needs to meet the requirements of the new code.

Otherwise, if the contractor

submits Form WR1 "Code of Practice for the Electricity (Wiring) Regulations" to the electric light company for requesting power supply on 1 December, 2017, electric light company will approve its power supply application according to the new code.

If not complying with the requirements of the 2015 edition, electric light company has the opportunity to refuse to provide electricity.

Even at this moment, everyone should pay more attention to this modification. Now during design process, it is necessary to consider this issue. The new code is basically applicable to new electrical installations

and large power installations that are being modified now.

No retroactivity to existing devices

You will not be forced to modify old devices due to the new code, for example, the old building sockets many years ago have no circuit breakers. However, since the implementation of the Code of Practice, circuit breakers are required to be installed.

However we will not deliberately require the installation of circuit breakers in old buildings which were built 30 to 40 years ago.

This is a principle.

Then explain the several roles mentioned in Code 2.

This 2015 edition, everyone needs to pay attention to the three more important roles.

This is the role of the process, among the three roles

The first role is the responsible person (Responsible Person)

This role also appeared in the 2009 version.

This time just redefined this role clearly.

These responsible personnel are actually electricians, that is, registered electrical workers.

They are appointed in writing by registered electrical contractors (REC) or owners of fixed electrical installations.

The appropriate level of personnel for the operation and maintenance of the relevant equipment.

Its main application has been documented in Appendix 16.

Permit-to-work and sanction-for-test,

the difference between the 2009 version and the 2015 version is that other than registered electrical worker,

representative of Registered Electrical Contractor (REC)

can also be responsible personnel in 2009 version.

After reviewing, it was discovered that there would be technical problems. Due to the main work of the responsible personnel is about permit-to-work and sanction-for-test. Assessment of these two permits need the person who has electricity knowledge and related background. The most suitable person to be appointed is a registered electrical worker (REW). This revision will be representative of registered electrical contractors (REC). In the past, when the content was not clear, the person who is not a registered electrical worker (REW) will be appointed for this type of work. If so, it will cause problems. The 2015 revision clearly stated that only the appropriate level of registered electrical workers (REW) can be the responsible person. This is the first role. Followed by the second role. The second role is the person-in-charge. This role also appeared in the 2009 version. This time, the role of registered electrical workers is also mentioned. Its job definition is the appropriate level responsible for electrical work for the devices appointed by registered electrical contractor (REC) or fixed power device owner. Registered electrical workers (REW), its main application has been recorded in Appendix 15 electrical safety assessment form and Appendix 16 permit-to-work and sanction-for-test. There is also a third role, which is responsible assessor. Responsible assessor is a brand new role. Never seen in the 2009 version. Mainly appointed by registered electrical contractors (REC) or fixed power device owner to evaluate the electrical safety of electricity work and suggest appropriate control measures. Three types of people can play this role, mainly registered electrical workers (REW) at the appropriate level or in electrical engineering/building services engineering industry, registered professional engineer (RPE) or

registered security officer (RSO).

These three types of people, when appointed by the registered electrical contractor (REC)

or fixed power device owner

can be the responsible assessor.

Its main application has been recorded in Appendix 15 electrical safety assessment form.

Forms related to these three types of people, for example, Appendix 15, electrical safety assessment form and Appendix 16, permit-to-work and sanction-for-test.

Later, I will explain a little more about the new form in the Code 2.

A new definition which is not found in the old version is sanction-for-test.

Mainly used in the testing of high voltage fixed power devices.

This form is signed by the responsible person and

sent to the person who is approved for testing on the high voltage device, so that the person knows the power device which need to be tested and the status when testing.

This is the new part of the 2015 version.

I will explain this form later.

Codes 1 and 2 explain the definitions adopted.

Modifications to this "Code of Practice",

in terms of safety regulations, many elements have also been strengthened.

Due to the past few years, the number of accidents on construction sites is also quite high.

Therefore, a lot of elements about site safety are added,

One of them is shown in Code 4H.

In terms of high voltage devices,

the "Code of Practice" was based on low-voltage devices in the past.

The IET Wiring Regulations

BS7671 is used as reference for compilation.

With the development of technology, now on the market,

the use of high-voltage devices by users is becoming more common.

In view of this, according to the requirements of the industry members,

for the electricity work of high voltage device,

provide them with safety guidelines and give them reference

The content has been published in Code 4H.

I won't go into details today.

I wonder if the Housing Department will do more high-voltage installations.

If not much, it can also be used for reference.

If so, you must refer to the contents of Code 4H.

In addition, the switch about high voltage, also added technical requirements which mainly published in Code 8A(7).

Added some technical requirements for the main switch of 11KV and 22KV.

In the future, if you need to use the main switch of 11KV and 22KV, please refer to the requirements of Code 8A(7).

11KV and 22KV, for the time being only used by HKC

CLP only uses 11KV for the time being.

Another content that is closer to everyone is the content of Code 9A(3)(d).

Code 9A(3)(d), plus new requirements, requires the use of a circuit breaker with a locking function.

Regarding the main background, the reason is to prevent electrical accidents caused by accidental startups of miniature circuit breaker (MCB) or molded case circuit breaker (MCCB) which are off but no special lock during electricity work.

In view of this, Code 9A(3)(d) requires all miniature circuit breakers (MCB) and molded case circuit breaker (MCCB) should be available with lockable function, make them lockable.

The key or tool should be kept by the person who locked the device, in order to avoid accidentally starting the circuit breaker.

When everyone is working on a new project, please pay attention to the warning notice of the high voltage device which is published in Code 17A(4).

For example, high voltage devices need to be clearly marked, not less than 30 mm, mark "DANGER-HIGH VOLTAGE".

Another request, about electricity lines.

If there is a chance that will be easily touched by the public, it is necessary to mark "DANGER-HIGH VOLTAGE".

The font is not less than 50 mm.

In view of this, all "DANGER-HIGH VOLTAGE" will be marked on high voltage devices of 11 kV and 22 kV.

During the inspection, it was found that the low-voltage device room was also attached

"DANGER-HIGH VOLTAGE" mark.

In fact, this mark should not be posted on low-voltage device room.

In the electrical industry,

The "DANGER-HIGH VOLTAGE" mark applies to high voltage installations of 11 kV and 22 kV.

The "DANGER-HIGH VOLTAGE" mark should not be posted on devices of 380 volts and 220 volts

To post a label on a low voltage device, can consider the "DANGER-ELECTRICITY" mark

which can send a warning message about electricity.

Another requirement does not have much to do with the new project.

When conducting Periodic Inspection, Testing and Certification (PITC), there were accidents in the past.

On or after 1 December, 2011,

if conducting annual inspections, the industry

need to disconnect the power supply from the transformer of the power company to the main electrical board,

it is necessary to ask the power company for the disconnect the power supply before the annual inspection can be carried out.

The requirements are formally concluded into the "Code of Practice", become a requirement of Code 21F.

Other new requirements, I don't know if it's related to everyone.

Mainly contained in Code 26R.

In general, it is common to install electric heating systems in buildings such as steaming rooms in recent years.

In view of this, Code 26R add

new technical requirements, relevant technical requirements are as follows.

If the wire or heating wire has a chance to be laid on the wall or on the ground, need to have an appropriate degree of mechanical protection.

Install an earth leakage circuit breaker when necessary.

Heating element and heating device

must comply with relevant UK and European standards.

Finally, follow the manufacturer's installation instructions.

The reason is that the heating elements on the market have their special design.

Although it complies with international standards,

it must also be installed according to the manufacturer's requirements.

In another case, there is a chance to be relevant to everyone.

There is a opportunity to use the charging facilities of electric vehicles in the new project of the Housing Authority.

We will publish the charging facility for electric vehicles in the 2015 version of the Code 26S.

Simply put, the requirement is to follow

the applicable regulations in the relevant guidelines

issued by the Electrical and Mechanical Services Department and

other relevant national or international standards or equivalent standards to design and install.

Is that simple?

Not so simple, of course not so simple.

The key lies in the guidelines of the Electrical and Mechanical Services Department.

Actually there are guidelines.

not in the "Code of Practice".

Since the "Code of Practice" will be updated every 5-6 years,

electric vehicle charging facilities are developing rapidly

which must develop faster than the updates every 5 to 6 years.

In view of this, we uploaded the guideline of charging facilities of electric vehicles separately on the website of the Electrical and Mechanical Services Department, easy to update.

Just enter the website of the Electrical and Mechanical Services Department,

enter the electricity safety publication guidance notes and guidelines,

you will find the Technical Guidelines on Charging Facilities for Electric Vehicles.

Click again to enter, there is clear content about the relevant technical guidelines.

In the guidelines, more introduction about the charging mode of the charging vehicle and plug mode,

for example, mode one, mode two, mode three, mode four.

Mode four is charged

in the form of direct-current fast charging.

In theory, 80% battery can be charged in 30 minutes.

In the guidelines, there are also introduction of different connectors for reference.

After telling the technical guidelines.

Next is the form of the work and procedures,

electricity safety assessment form

which mainly published in Code 4G(1)(d)

and Appendix 15B.

The electricity safety assessment form was first added in 2015.

Its predecessor was the "Risk Assessment Report on Live Work"

which first published in 2009.

The main purpose of 2009 version of the "Risk Assessment Report on Live Work"

is to reduce the risk of live work

and avoid accidents.

However, after the implementation of the form, the industry reflected that the form has room for improvement.

They encountered a lot of difficulties when filling in the form.

The form does not seem to have much to fill in.

Simple forms are harder to fill out.

It seems like writing.

Not our strength, otherwise it will not be an engineering staff.

Even the industry has people who are good at writing,

if you give up to fill in the form because you are not good at writing,

this is not what we want to see.

Through this review to update, organize and simplify the form.

The frontline workers (frontline electricians) no need to write too many words,

no need to spend too much time on the form.

Therefore the form is updated.

No need to write too many words.

The updated form is more detailed,

clearly list all situations.

This revised version of the form is more detailed,

no need to fill in many words.

Everyone just needs to choose the right items,

some items must be filled in,

such as name, signature and work location.

Some situations that cannot be preset,
such as position of electrical switch.

The difference between the old and new forms is to list the options in more details.

The number of pages has also increased.

Of course, it will be more difficult to fill in the form for the first time.

But after familiarity, it will be easier to fill in,
better than the previous form which is too simple.

In the past, the form was simpler and more content was required to fill in.

There are now several preset items for everyone to fill in.

Briefly explain the contents of the form,
date, time, place.

Two important roles have just been mentioned,
the first one is the responsible person,
he/she is the main person filling in the form.

Once completed, it will be handed over to the person-in-charge.

After being signed by the responsible assessor,
it will be handed over to the responsible person for execution.

The form is mainly divided into two parts,
Part A and Part B.

Some projects only need to fill in Part A,
do not need to fill in Part B.

Part A is mainly: when certain projects are carried out,
such as some engineering projects,
there is a chance that the neutral line will not be cut off after the electricity is turned
off.

What does it mean to "do not cut off the neutral line"?

There is a chance to use triple pole & neutral switch
or single pole & neutral switch.

This form is required if the neutral line is connected.

Just choose the right mode.

Just a safety warning, the form has been completed.

You need to pay attention to the situation that the neutral line has live electricity.

The reason for the reminder is that there have been problems in the past.

Even though the lines are separated, the neutral line is still connected,
there is a chance to cause leakage.

So this form is designed to

keep everyone aware of the danger of not cutting off the neutral line.

The method of filling in Part A and Part B is to choose one of them.

Part B is traditional method of filling in.

The person who works on live installation,
for example, conducts low voltage operation, which is 220V or 380V.

We never encourage live work.

I also understand that in reality,
live work is a must.

In this case, you have to fill in this form.

The first part is mainly about the situation of the switch,
for example, quadrupole moulded case circuit breaker (MCCB),
double pole miniature circuit breaker (Double Pole MCB),
three pole and neutral welding air circuit breaker (ARB).

The following is the explanation of the reasons for the power outage,
because turning off the electrical switch will cause a power outage.

If you work in a hospital, you need to fill in the appropriate place to explain,
then talk about hazards, such as electric shock.

The second column involves participants,
except you, there are also helpers,
other engineering staff and apprentices on site.

You have to fill it in here.

Part three is about suggestion on safety measures,
not very complicated.

Whether you need to wear gloves, insulated shoes or floor mats, etc.
which are relatively common control measures.

I hope everyone can fill in the form easily.

That's how this form is used.

I also introduce the second form,
permit-to-work
which is mainly published in Code 4G(1)(e)
and Appendix 16A.

It is mentioned that if it is difficult
to avoid danger during live work,
it is necessary to isolate the electrical appliance
and use an approved voltage display.

Make sure the appliance is not powered.
and issue permit-to-work
before work commencement.

After group discussion, representatives of industry

wish to simplify the contents of the form.

Therefore, we revised the contents of the form.

The permit-to-work is mainly divided into four parts.

The first part is mainly issued,

followed by receiving, evacuation and revocation.

These four parts are still preserved.

The revised content is mainly in the first part.

The difference from the 2009 version,

similar to the electricity safety assessment form,

is mainly based on the selection method.

Accept the comments from industry, reduce the content to fill in

There are also standing options to choose from.

The electricity safety assessment form is filled in by the responsible person,
handed over to the responsible person-in-charge.

This form is issued by the responsible person,
then executed by the person-in-charge.

For example, the resident maintenance personnel in the mall
who is responsible for emergency repair

The new replacement work will be outsourced to other companies for execution.

In this way, the resident electrician will issue the first part.

The purpose is to confirm which parts of the power system are safe
and have been connected to the ground.

A safe working environment has been provided for outsourcing companies to
execute their work.

The outsourced executive will sign the second part
which indicates that he clearly knows the supply of electricity
and identifies which areas are safe and work.

The third part is similar to the 2009 version.

After the completion of the project, the person-in-charge,
who is the electrician of the outsourcing service provider,
tells the resident electrician that the work has been completed
and related tools are also removed.

In the fourth part, the responsible person revokes the form.

He will re-supply electricity.

In theory, no more workers will be present
and conduct electrical work.

This is the relevant application of the form.

The last form is the permit-to-test,

mainly used for testing fixed high voltage electrical equipment.

After the form is issued,

then the worker can work on the live part.

This form is mainly used for high voltage devices,

and is very similar to previous permit-to-work

It is also divided into four parts.

The only difference is

of course, the part of issued is also signed by responsible person

and the person-in-charge for execution.

What is the difference?

The part of filling in still remains.

Less information is required to be filled in for the part of Permit-to-work.

Sanction-for-test needs to be filled in with more information.

The difference is that sanction-for-test is used for

high voltage devices,

and requires more content to fill in to achieve a certain level of security.

The form is similar to the permit-to-work.

The only difference is the part on the earthing wire,

the earthing wire will be moved according to different situations.

This is the 2015 version of the sanction-for-test.

I have basically finished the introduction.

There are also messages for your attention.

About printing errors,

English editions P.89, 90 and 335,

related errors are found on 25 February, 2016.

The amendment has been uploaded to the EMSD website

If you buy a printed version of the code,

you need to enter the website to download the relevant pages.

If you use the software version, you should pay attention to the download date.

It is recommended to download the latest version, which is safer.

Chinese version also has errors,

Chinese version P.88, 125 and 324

The relevant update was uploaded on 31 March, 2016

to the department's website.

If you buy the printed version of the code,

just download the relevant pages.

If talking about software version, it will be fine

if you download it after 31 March, it is the latest version.
If it is downloaded previously, you need to download the latest version.
It can be found on the link of the “Code of Practice”.
This is today's sharing, thank you all.

Thank You For Watching.