Alpha
Engineering Consultant
2 ALEXANDRA ROAD, #03-03 DELTA HOUSE, SINGAPORE 159919.
TELEPHONE: (65) 276 2228 FACSIMILE: (65) 276 9929

Our Ref: OM-LA/020

27 March 1997

MEMORANDUM

To : Members of Staff

From : Tan L S

Subject : ACESS/IES' Dialogue with PUB/Power Supply/PowerGrid

1. Meeting Held on 20 December 1996

I am pleased to attach notes of the meeting for your information.

2. Meeting Held on 21 March 1997

PUB informed that Revisions to the following Regulations were gazetted on 1 March 1997:

(a) Electrical Workers & Contractors Licensing Regulations & The Public Utilities (Licence to Use or Operate Electrical or Supply Installations) Regulations.

(b) Public Utilities (Electricity Supply) Regulations

(c) Public Utilities (Electricity) Regulations

I am enclosing PUB's Circulars No. RD/E01/97, RD/E02/97 and RD/E03/97 pertaining to the above together with prescribed PUB Forms for use by LEWs.

3. Pertinent Government Gazette Subsidiary Legislation Supplement dated 21 February 1997

The Government Gazette is available in our Library for use by the staff. The contents of the Acts concerned are attached for your reference, viz. :

- Electrical Workers and Contractors Licensing Act (Chapter 89)
  Electrical Workers and Contractors Licensing Regulations 1997
- Public Utilities Act (Chapter 261)
  Public Utilities (Licence to Use or Operate Electrical or Supply Installations) Regulations 1997
- Public Utilities Act (Chapter 261)
  Public Utilities (Electricity) Regulations 1997

2/...

Our Ref: OM-LA/020

27 March 1997

- Public Utilities Act (Chapter 261)
  Public Utilities (Electricity Supply) Regulations 1997

- Public Utilities Act (Chapter 261)
  Public Utilities (Cable Detection Workers) Regulations 1997

TAN L S

Distribution:

Memo File
LKS/GSH/FYC/LFY
RT

enc:

TLS/sn

MEETING BETWEEN ACES/IES/PUB/POWERGRID/POWER SUPPLY
NOTES OF MEETING HELD ON 20 DECEMBER 1996 AT 2.30PM

Venue: PUB Regulation Department Conference Room

Present:		
	Er Tan Lai Siong	ACES
	Er Leong Kok Yeong	ACES
	Er David Woo	~~IES~~ ACES
	Er Lum Chong Chuen	IES
	Er Ng Kong	PUB
	Er Hoon Chee Nium	PowerGrid
	Er Lim Jit Meng	PowerGrid
	Er T P Manohar	Power Supply
	Er Pang Boon Kiat	Power Supply

Matters Discussed:

1. **Confirmation of Previous Meeting Notes:**

The notes of previous meeting held on 20 Sep 96 was confirmed with the last sentence of paragraph 4.2 replaced by the following:-

"ACES enquired if this is a requirement, and if so, requested PowerGrid to make this known early, in response to application for supply".

2 **Matters Arising:**

2.1 Double Storey Substation Building Design

PowerGrid had studied the ACES/IES's proposal and would prefer motorised hoist instead of chain block to be provided for the double storey substation.

2.2 Revised Regulations under the Public Utilities Act

PUB informed that the revised Regulations had been approved by the Minister of Trade and Industry. It will be implemented in the next year. Issues that could impact on the electrical practitioner could be discussed at a separate meeting.

2.3 PUB informed that reminder to LEWs to submit inspection reports will be sent before the due date. No further reminder will be given and appropriate action will be taken against LEW for late or non-submission of inspection report by the due date.

2.4 Letter to inform LEW regarding PowerGrid officer-in-charge

IES requested PowerGrid to state explicitly in the first letter to the LEW that LEW is required to reply within a certain time-frame. PowerGrid informed that the time-frame of two weeks will be indicated in the first letter issued by the PowerGrid's Project Engineer to the LEW.

2.5 Information on Gross Floor Area (GFA)

PowerGrid informed that GFA information is required to be indicated on the pre-application consultation form (CS2). As the actual GFA may not be available at the planning stage, an estimated GFA will do.

2.6 Harmonics Problems

Mr Leong of ACES brought up an issue on harmonics problems encountered by customers and asked whether there was any Authority to control/limit the harmonics generated by the customers. PowerGrid replied that harmonics distortion generated by consumers' non-linear devices were mainly confined within the customers' premises. ACES should advise the LEWs to take care of possible harmonics problems for their clients when designing the electrical installations. ACES might propose to PSB to form a technical committee on standard regarding limits for harmonics and the design guidelines.

3 The next meeting was scheduled on 21 March 1997 at 2.30 pm at PUB 15th Storey Conference Room.

****

PUBLIC UTILITIES BOARD · SINGAPORE
111 SOMERSET ROAD #15-01 SINGAPORE 238164 • REPUBLIC OF SINGAPORE
TEL: 2358888

Our Ref:

Your Ref:

Circular No: RD/E01/97
Date of issue: 14 Mar 1997

To: All Licensed Electrical Workers and Contractors

Dear Sirs,

REVISION OF ELECTRICAL WORKERS & CONTRACTORS LICENSING REGULATIONS AND THE PUBLIC UTILITIES (LICENCE TO USE OR OPERATE ELECTRICAL OR SUPPLY INSTALLATIONS) REGULATIONS

The above Regulations were amended and updated. The Electrical Workers & Contractors Licensing Regulations 1997 and the Public Utilities (Licence To Use Or Operate Electrical Or Supply Installations) Regulations 1997 have come into operation on 1st Mar 97.

2 Under the above Regulations, the fees for the various licences which remained unchanged since 1984 are revised and the fee structure is streamlined. These fees are now closer to being cost reflective. Details of the revised fees are given in Appendices 1 and 2.

3 Provisions have also been made under the Electrical Workers & Contractors Licensing Regulations 1997 for PUB to appoint high voltage testing engineers (HVTE) and small installation testers (SIT). Suitably qualified licensed electrical workers may apply to the Board to be appointed as high voltage testing engineers or small installation testers under regulation 20 of the Electrical Workers & Contractors Licensing Regulations 1997. The respective application forms are given in Appendices 3 and 4. Authorised high voltage testing engineers and authorised small installation testers registered previously with PUB's former Electricity Department may continue to practise as a HVTE and SIT when they are re-appointed by PUB.

4 Your attention is also drawn to regulation 11 of the Public Utilities (Licence To Use Or Operate Electrical Or Supply Installations) Regulations 1997. It stipulates that if a licensed electrical worker (LEW) is unable to perform his duties for any period of time in respect of the electrical installation of which he is in charge, he shall -

(i) inform PUB of such inability to perform his duties; and

(ii) obtain PUB's written approval for another LEW (who has consented) to stand in for him during the period he is unable to perform his duties. He shall apply to PUB for approval for such arrangement not less than 3 working days prior to the commencement of the stand-in period.

5 Licensed Electrical Workers and Contractors are advised to familiarise themselves with the Regulations. A copy of the Regulations may be purchased from the SNP Corporation Ltd at 8 Shenton Way #B1-07, Treasury Building, Singapore 068811.

6 Should you need any clarification, please do not hesitate to contact our officers at Tel No 7313670 or 7313661.

Yours faithfully

YEO YEK SENG
AG DIRECTOR
REGULATION DEPARTMENT

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Appendix 1

ELECTRICAL WORKERS AND CONTRACTORS LICENSING REGULATIONS 1997

THE SCHEDULE OF FEES

1.	**Fees payable by an electrical contractor:**	
(a)	For licence as an electrical contractor	$200
(b)	For renewal of licence as an electrical contractor	$150
(c)	For a replacement licence as an electrical contractor	$ 20
2.	**Fees payable by an electrical worker:**	
(a)	For a licence as an electrician	$ 80
(b)	For renewal of licence as an electrician	$ 30
(c)	For a licence as an electrical technician	$110
(d)	For renewal of licence as an electrical technician	$ 60
(e)	For a licence as an electrical engineer	$130
(f)	For renewal of licence as an electrical engineer	$ 80
(g)	For alteration of licence as an electrical worker for the purpose of appointment as a high voltage testing engineer	$ 80
(h)	For alteration of licence as an electrical worker for the purpose of appointment as a small installation tester	$ 30
(i)	For a replacement licence as an electrical worker	$ 20
3.	**Fees payable for information to be obtained from :**	
(a)	Electrical Contractors' Register	$ 5
(b)	Electrical Workers' Register	$ 5

Appendix 2

PUBLIC UTILITIES (LICENCE TO USE OR OPERATE ELECTRICAL OR SUPPLY INSTALLATIONS) REGULATIONS 1997

THE SCHEDULE OF FEES

1.	Fee for a licence to use or operate an electrical installation	$100
2.	Fee for a licence to use or operate a supply installation	$150
3.	Fee for the renewal of a licence to use or operate an electrical installation	$100
4.	Fee for the renewal of a licence to use or operate a supply installation	$100
5.	Fee for a replacement licence	$ 20
6.	Fee for information as to whether or not a person is a holder of a licence to use or operate any electrical or supply installation	$ 5

FORM HVT

Electrical Workers And Contractors Licensing Regulations 1997

APPLICATION FOR APPOINTMENT AS A HIGH VOLTAGE TESTING ENGINEER

To : The Director
Regulation Department
Public Utilities Board
111 Somerset Road #15-06
Singapore 238164

Attn: Senior Manager (Inspectorate)

I _____

possessing Electrical Worker's Licence No _____ wish to apply to be appointed as a High Voltage Testing Engineer by the Public Utilities Board.

Projects from which I have acquired the relevant experience in equipment testing are listed below :

	Date	Name/Address of Project
(1)	_____	_____
(2)	_____	_____
(3)	_____	_____
(4)	_____	_____
(5)	_____	_____

Certified true copies of test reports on the equipment for the above projects are attached and they include:

(a) AC pressure tests
(b) DC pressure tests
(c) PI & SI tests
(d) Ratio test on Transformer
(e) Transformer insulation dielectric strength test

Details of test equipment to be used by me are given overleaf.

I declare that the statements made in this application are true to the best of my knowledge and belief.

_____ _____
Signature of Applicant Date

Note: A fee of $80 should accompany this application. Cheques should be crossed and made payable to the "Public Utilities Board".

FORM SIT

Electrical Workers And Contractors Licensing Regulations 1997

APPLICATION FOR APPOINTMENT AS A SMALL INSTALLATION TESTER

To : The Director
Regulation Department
Public Utilities Board
111 Somerset Road #15-06
Singapore 238164

Attn: Senior Manager (Inspectorate)

Part I

I, _____, possessing Electrical Worker's Licence No _____

wish to apply to be appointed as a Small Installation Tester by the Public Utilities Board.

I am presently employed by

Name & Address of Employer	From	To

Details of test equipment to be used by me are given overleaf.

I declare that the statements made in this application are true to the best of my knowledge and belief.

_____ _____

Signature of Applicant Date

Part II

We, M/s _____ possessing Electrical Contractor's Licence No _____ confirm that the applicant is a licensed electrical worker in the sole and continuous employment of our company and his application is supported.

Company stamp and
Authorised Signature _____ Date : _____

Note : 1. An applicant should meet the following conditions to be eligible for registration :

(i) he must either be a licensed electrical contractor or in the sole and continuous employment of a licensed electrical contractor;

(ii) he or his employer must own all the necessary test equipment; and

(iii) in addition, he would have to satisfy the Public Utilities Board regarding his competency to carry out small installation testing.

2. A fee of $30 should accompany this application. Cheques should be crossed and made payable to the "Public Utilities Board".

PUBLIC UTILITIES BOARD · SINGAPORE
111 SOMERSET ROAD #15-01 SINGAPORE 238164 • REPUBLIC OF SINGAPORE
TEL: 2358888

Our Ref:

Your Ref:

Circular No: RD/E02/97
Date of issue:14 Mar 1997

To: All Licensed Electrical Workers & Contractors

Dear Sirs

REVISION OF PUBLIC UTILITIES (ELECTRICITY SUPPLY) REGULATIONS

The above Regulations were amended and updated. The Public Utilities (Electricity Supply) Regulations 1997 have come into operation on 1st Mar 97.

2 Your attention is drawn to regulation 5 of the Regulations which requires the electricity supplier to ensure that no electricity shall be supplied to any consumer whose electrical installation is not exempted from licensing, unless a statement of turn-on of electricity is issued by the electricity supplier. Currently, Power Supply Ltd is the only electricity supplier.

3 The statement of turn-on of electricity shall be in the approved form as given in the Appendix.

4 The statement of turn-on of electricity is an official document and it serves as a record for the turn-on of electricity to a consumer's electrical installation. The document shall be issued by the electricity supplier and acknowledged by all the relevant parties concerned at the time of turn-on of electricity. It places on record that -

a. the licensed electrical worker (LEW) responsible for the design and installation of the electrical installation, the LEW responsible for the operation of the electrical installation, and the authorised officer of the electricity supplier have consented to the turn-on of electricity to the installation;

b. the consumer has acknowledged the turn-on of electricity; and

c. electricity supply to the electrical installation is turned on on that particular date.

(iv) Regulation 19 stipulates the requirements for work on high voltage apparatus that is connected to a source of electricity under the control of another licensed electrical worker. For such a case, it is necessary for the authorised high voltage switching engineer to obtain from the other licensed electrical worker, who has control of the source of electricity, a statement of disconnection and reconnection of source of electricity as given in Appendix 3.

3 An authorised high voltage switching engineer is advised to keep copies of all serially numbered Permit-To-Work certificates and statements of disconnection and reconnection of source of electricity issued and cancelled by him so that these certificates and statements may be produced for inspection when required by PUB.

4 Licensed electrical workers and contractors are advised to familiarise themselves with the Regulations. A copy of the Regulations may be purchased from the SNP Corporation Ltd at 8 Shenton Way #B1-07, Treasury Building, Singapore 068811.

5 Please contact our officers at telephone number 7313098 or 7313661 should you need further clarification.

Yours faithfully

YEO YEK SENG
AG DIRECTOR
REGULATION DEPT

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PUBLIC UTILITIES BOARD · SINGAPORE
111 SOMERSET ROAD #15-01 SINGAPORE 238164 • REPUBLIC OF SINGAPORE
TEL: 2358888

Our Ref:

Circular No: RD/E03/97
Date of issue: 14 Mar 1997

Your Ref:

To: All Licensed Electrical Workers & Contractors

Dear Sirs

REVISION OF PUBLIC UTILITIES (ELECTRICITY) REGULATIONS

The above Regulations were amended and updated. The Public Utilities (Electricity) Regulations 1997 have come into operation on 1st Mar 97. Your attention is drawn to the following requirements:

a Requirement to comply with Code of Practice CP44 : Temporary Electrical Installations for Construction and Building Sites, where applicable;

b Safety requirements for decorative lighting in places where members of the public have access; and

c Requirements for the safe operation of high voltage installations in consumers' premises as stipulated in Part III : Work On High Voltage Apparatus.

2 Please note in particular the following requirements to be complied with for work on high voltage apparatus under Part III of these Regulations:

(i) An authorised high voltage switching engineer (i.e. a licensed electrical engineer who is authorised to operate high voltage apparatus) shall ensure that the procedures set out in regulation 17 are complied with when any work is to be carried out on high voltage apparatus. The warning notice required under regulation 17(1)(b) shall be in accordance with the form given in Appendix 1;

(ii) Where work on high voltage apparatus is to be carried out by competent person(s) appointed by the authorised high voltage switching engineer in-charge, the authorised high voltage switching engineer shall issue to every competent person a Permit-To-Work certificate using the approved form given in Appendix 2;

(iii) An authorised high voltage switching engineer shall ensure that every competent person he appoints to carry out work on high voltage apparatus is a licensed electrical worker;

5 Please note that a copy of the statement of turn-on of electricity shall be kept by each party concerned and it shall be produced for inspection when so required by PUB.

6 Licensed Electrical Workers and Contractors are advised to familiarise themselves with the Regulations. A copy of the Regulations may be purchased from the SNP Corporation Ltd at 8 Shenton Way #B1-07, Treasury Building, Singapore 068811.

7 Please contact our officers at telephone number 7313098 or 7313661 should you need further clarification.

Yours faithfully

YEO YEK SENG
AG DIRECTOR
REGULATION DEPT

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Appendix

STATEMENT OF TURN-ON OF ELECTRICITY

ELECTRICITY SUPPLY TO _____
(Name of Applicant)

AT _____
(Address of Installation)

_____

ELECTRICAL INSTALLATION LICENCE NO : _____

The electricity supplier is satisfied that the above-mentioned electrical installation had been tested and certified fit for turn-on of electricity supply by the licensed electrical worker (LEW) responsible for the design and installation of the electrical work thereof. Accordingly, the electricity supplier agrees to turn on the electricity supply on _____ *(date)* at _____ *(time)*, and thereafter the licensed electrical worker appointed by the applicant will operate, be in charge of or control this electrical installation.

_____ _____
Name & Signature of authorised officer of the electricity supplier — Name of electricity supplier

I consent to the turn-on of electricity supply on the date and time as indicated above.

_____ _____
Name & Signature of LEW responsible for the design & installation of the electrical installation — Licence No.

I consent to the turn-on of electricity supply on the date and time as indicated above and confirm that I will take charge of this electrical installation after the turn-on.

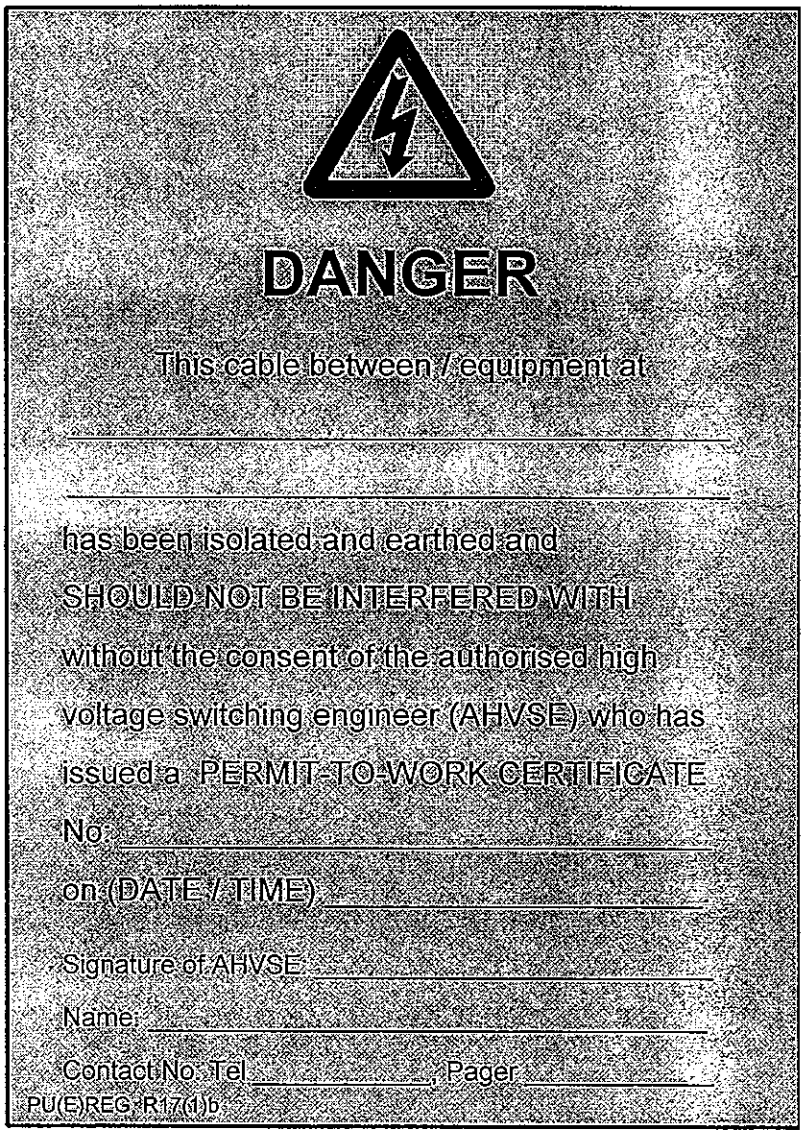
_____ _____
Name & Signature of LEW responsible for the operation of the electrical installation — Licence No.

I acknowledge that electricity supply has been turned on on the date and time as indicated above.

_____ _____
Name & Signature of Applicant — NRIC / Passport No.

Appendix 1

NOTICE AGAINST ANY INTERFERENCE WITH LIVE APPARATUS



(The symbol and text shall be black and background colour shall be yellow. This Notice shall be printed on self-adhesive A6-size paper)

Appendix 2

*PTW Cert. No: _____

PERMIT TO WORK
ON HIGH VOLTAGE CABLES & EQUIPMENT
IN CONSUMER'S ELECTRICAL INSTALLATION

1. **ISSUE OF PERMIT :**

This is to certify that the following cable between / equipment at _____

_____

(state the exact location and / or switchroom involved)

HAS BEEN ISOLATED at _____

AND EARTHED at _____

(state exact point or position of isolation and earthing)

AND IS NOW SAFE TO WORK ON. Details have been recorded in the Consumer Switchroom Record Book.

Time of issue of Permit : _____ Date of issue : _____

The Competent Person in charge of work has been instructed to commence work.

_____ _____

Name & Signature of Authorised High Voltage Switching Engineer Licence No.

2. **INSTRUCTION TO WORK:**

I have read and understood the instructions from the Authorised High Voltage Switching Engineer to commence work on the above cable / equipment.

Time : _____ Date : _____

_____ _____

Name & Signature of Competent Person Licence No.

3. **COMPLETION OF WORK :**

The work has been completed, all personnel and tools have been withdrawn, and the men in my charge have been warned that it is no longer safe to work on the above cable / equipment.

Time : _____ Date : _____

_____ _____

Name & Signature of Competent Person Licence No.

4. **CANCELLATION OF PERMIT :**

The above Permit No. _____ dated _____ is now cancelled and withdrawn. No further work is to be performed on the above cable / equipment without another PERMIT-TO-WORK.

Time of cancellation : _____

Date of cancellation : _____

_____ _____

Name & Signature of Authorised High Voltage Switching Engineer Licence No.

* Duplicate copy of this certificate shall be retained by the Authorised High Voltage Switching Engineer.

Appendix 3

*Statement No. (E.g. 9/12345/0001)

STATEMENT OF DISCONNECTION AND RECONNECTION OF SOURCE OF ELECTRICITY FOR ELECTRICAL INSTALLATION TAKING HIGH VOLTAGE SUPPLY FROM ANOTHER ELECTRICAL INSTALLATION

The following statements concern the disconnection and reconnection of the service feeder specified below from the source of electricity. Each statement shall be valid only when it is signed by both the Authorised High Voltage Switching Engineer (AHVSE) and the person having control of the source of electricity.

The incoming service feeder No:_____

of (name of installation) _____ (Licence No: _____)

is to be isolated from the source of electricity

at (name of installation) _____ (Licence No: _____).

This disconnection of the above-mentioned service feeder

from the source of electricity is requested by : (Name) _____

PART I : STATEMENT OF DISCONNECTION OF SOURCE OF ELECTRICITY

TIME:_____ DATE: _____

DECLARATION BY PERSON HAVING CONTROL OF THE SOURCE OF ELECTRICITY : I, the undersigned, declare that the above service feeder has been safely isolated from the source of electricity and will not be reconnected without the prior written agreement of the AHVSE for the above first-named installation.

SIGNATURE:_____NAME:_____ LICENCE NO:_____

DECLARATION BY AHVSE: I, the undersigned, declare that the above service feeder has been safely isolated from the above first-named installation.

SIGNATURE:_____NAME:_____ LICENCE NO:_____

PART II: WRITTEN AGREEMENT FOR RECONNECTION TO SOURCE OF ELECTRICITY

TIME: _____ DATE:_____

DECLARATION BY AHVSE: I, the undersigned, declare that the above first-named installation to which the above service feeder is connected, is cleared of all earthing leads, labour and tools, and that the service feeder is safe for reconnection to the source of electricity with effect from the time specified above. I undertake to ensure that no work by any person will be carried out on the above service feeder until a new statement is signed by both parties.

SIGNATURE:_____NAME:_____ LICENCE NO: _____

DECLARATION BY PERSON HAVING CONTROL OF THE SOURCE OF ELECTRICITY: I, the undersigned, acknowledge the above declaration by the AHVSE and agree to reconnect the source of electricity to the above service feeder.

SIGNATURE:_____NAME:_____ LICENCE NO: _____

FORM OF DOCUMENTS APPROVED BY THE PUBLIC UTILITIES BOARD

No:	Title
1	Permit To Work On High Voltage Cables & Equipment In Consumer's Electrical Installation
2	Notice Against Any Interference With Live Apparatus
3	Statement For Disconnection & Reconnection Of Source Of Electricity
4	Completion Certificate For Modification Of Small Electrical Installation
5	Overcurrent And Earth Fault Relay Operation Test (LT Installation)
6	Overcurrent And Earth Fault Relay Operation Test (HT Installation)
7	Pilot Wire Protection Relay Operation Test
8	Current Transformer Ratio & Polarity Test
9	Primary Current Injection Test On Circuit Breaker
10	High Voltage Power Frequency Test - Switchgear
11	High Voltage DC Test On Cable
12	Transformer Ratio Test

*PTW Cert. No: _____

PERMIT TO WORK

ON HIGH VOLTAGE CABLES & EQUIPMENT

IN CONSUMER'S ELECTRICAL INSTALLATION

1. ISSUE OF PERMIT :

This is to certify that the following cable between / equipment at _____

_____

(state the exact location and / or switchroom involved)

HAS BEEN ISOLATED at _____

AND EARTHED at _____

(state exact point or position of isolation and earthing)

AND IS NOW SAFE TO WORK ON. Details have been recorded in the Consumer Switchroom Record Book.

Time of issue of Permit : _____ Date of issue : _____

The Competent Person in charge of work has been instructed to commence work.

_____ _____

Name & Signature of Authorised High Voltage Switching Engineer Licence No.

2. INSTRUCTION TO WORK:

I have read and understood the instructions from the Authorised High Voltage Switching Engineer to commence work on the above cable / equipment.

Time : _____ Date : _____

_____ _____

Name & Signature of Competent Person Licence No.

3. COMPLETION OF WORK :

The work has been completed, all personnel and tools have been withdrawn, and the men in my charge have been warned that it is <u>no longer safe</u> to work on the above cable / equipment.

Time : _____ Date : _____

_____ _____

Name & Signature of Competent Person Licence No.

4. CANCELLATION OF PERMIT :

The above Permit No. _____ dated _____ is now cancelled and withdrawn. No further work is to be performed on the above cable / equipment without another PERMIT-TO-WORK.

Time of cancellation : _____

Date of cancellation : _____

_____ _____

Name & Signature of Authorised High Voltage Switching Engineer Licence No.

*Duplicate copy of this certificate shall be retained by the Authorised High Voltage Switching Engineer.

REF: PU(E) REG, R15

NOTICE AGAINST ANY INTERFERENCE WITH LIVE APPARATUS



DANGER

This cable between / equipment at

_____

_____

has been isolated and earthed and SHOULD NOT BE INTERFERED WITH without the consent of the authorised high voltage switching engineer (AHVSE) who has issued a PERMIT-TO-WORK CERTIFICATE No: _____

on (DATE / TIME) _____

Signature of AHVSE: _____

Name: _____

Contact No: Tel _____, Pager _____

PU(E)REG, R17(1)b

(The symbol and text shall be black and background colour shall be yellow. This Notice shall be printed on self-adhesive A6-size paper)

*Statement No. (E.g. 9/12345/0001)

STATEMENT OF DISCONNECTION AND RECONNECTION OF SOURCE OF ELECTRICITY FOR ELECTRICAL INSTALLATION TAKING HIGH VOLTAGE SUPPLY FROM ANOTHER ELECTRICAL INSTALLATION

The following statements concern the disconnection and reconnection of the service feeder specified below from the source of electricity. Each statement shall be valid only when it is signed by both the Authorised High Voltage Switching Engineer (AHVSE) and the person having control of the source of electricity.

The incoming service feeder No: _____

of (name of installation) _____ (Licence No: _____)

is to be isolated from the source of electricity

at (name of installation) _____ (Licence No: _____).

This disconnection of the above-mentioned service feeder
from the source of electricity is requested by : (Name) _____.

PART I : STATEMENT OF DISCONNECTION OF SOURCE OF ELECTRICITY

TIME:_____ DATE: _____

DECLARATION BY PERSON HAVING CONTROL OF THE SOURCE OF ELECTRICITY : I, the undersigned, declare that the above service feeder has been safely isolated from the source of electricity and will not be reconnected without the prior written agreement of the AHVSE for the above first-named installation.

SIGNATURE:_____NAME:_____ LICENCE NO:_____

DECLARATION BY AHVSE: I, the undersigned, declare that the above service feeder has been safely isolated from the above first-named installation.

SIGNATURE:_____NAME:_____ LICENCE NO:_____

PART II: WRITTEN AGREEMENT FOR RECONNECTION TO SOURCE OF ELECTRICITY

TIME: _____ DATE:_____

DECLARATION BY AHVSE: I, the undersigned, declare that the above first-named installation to which the above service feeder is connected, is cleared of all earthing leads, labour and tools, and that the service feeder is safe for reconnection to the source of electricity with effect from the time specified above. I undertake to ensure that no work by any person will be carried out on the above service feeder until a new statement is signed by both parties.

SIGNATURE:_____NAME:_____ LICENCE NO: _____

DECLARATION BY PERSON HAVING CONTROL OF THE SOURCE OF ELECTRICITY: I, the undersigned, acknowledge the above declaration by the AHVSE and agree to reconnect the source of electricity to the above service feeder.

SIGNATURE:_____NAME:_____ LICENCE NO: _____

COMPLETION CERTIFICATE FOR MODIFICATION OF SMALL ELECTRICAL INSTALLATION

To: Power Supply Ltd

MODIFICATION TO ELECTRICAL INSTALLATION AT _____

_____

(Address of installation)

PSL Account No: _____

in the Name of: _____

I, _____, a duly appointed Small Installation Tester (SIT) under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, certify that the modification to the above-mentioned electrical installation has been inspected and tested by me in accordance with the current version of Singapore Standard CP5, and that to the best of my knowledge and belief the modification summarised below complies with the said Singapore Standard CP5 and the relevant Regulations. I further confirm that no upgrading of supply is required and that there is no socket outlet in the bathroom. The said modification has been turned on on _____.

Description	Quantity
Lighting points (max. twenty nos)	
13 Amp socket outlets (max. twenty nos)	
15 Amp circuit (max. one no.)	
Heater point (max. one no.)	

2 I append below the details of supply intake and the result of the test:-

Incoming supply: PowerGrid network/Third party electrical installation

MCB/Cutout size	:	Amp
Revenue meter No	:	
ELCB rating	:	Amp/30 mA sensitivity
Phase to Phase insulation	:	Mohm
Phase to Earth insulation	:	Mohm
Neutral to Earth insulation	:	Mohm
ELCB test satisfactory	:	Yes/No
Polarity Check Satisfactory	:	Yes/No
Earth fault loop impedance	:	ohm

Date of test: _____

_____ _____ _____

Signature of SIT Licence No Date

Stamp of Licensed
Electrical Contractor:_____ Licence No:_____

cc Consumer

OVERCURRENT AND EARTH FAULT RELAY OPERATION TEST

REF NO: _____

NAME OF CONSUMER _____

INSTALLATION ADDRESS _____

DATE OF TEST . _____ MAKE OF SWITCHGEAR : _____
SERVICE TYPE : * Direct from: PowerGrid / Landlord

PARTICULARS OF RELAYS

	Make	Type	Tripping Charac	Rating	S/No.
O/C Relay :			* 3/10 or 1.3/10		
E/F Relay :			* 3/10 or 1.3/10		

TEST RESULTS of LT Installation Panel No/Circuit Name _____

O/C RELAY					E/F RELAY				
Plug Setting	Sec Cur	Operating Time R	Y	B	Plug Setting	Sec Cur	Operating Time	TM Setting	Std Time
5.0A	10A				1.0A	2A			
5.0A	15A				1.0A	3A			
5.0A	25A				1.0A	5A			
seal at					seal at			Seal at	
Plug Setting	Starting Current R	Y	B		Plug Setting	Starting Current			
5.0A					1.0A				
High Set	Operating Current R	Y	B		High Set	Operating Current			
Secondary Wiring Insulation Resistance :				Mohms					

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER (HVTE) :

I, _____, a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/ BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____
Signature of HVTE Licence No Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW)

The above test results are satisfactory and acceptable to me.

_____ _____ _____
Name & Signature of LEW-in-charge of above-mentioned installation Licence No Date

(* Delete whichever is not applicable)

OVERCURRENT AND EARTH FAULT RELAY OPERATION TEST

REF NO: _____

NAME OF CONSUMER _____

INSTALLATION ADDRESS _____

DATE OF TEST . _____ MAKE OF SWITCHGEAR : _____
SERVICE TYPE : * Direct from: PowerGrid / Landlord

PARTICULARS OF RELAYS :

	Make	Type	Tripping Charac	Rating	S/No.
O/C Relay :					
E/F Relay :					

TEST RESULTS of HT Installation Panel No/Circuit Name _____

O/C RELAY					E/F RELAY				
Plug Setting	Sec Cur	Operating Time R	Y	B	Plug Setting	Sec Cur	Operating Time	TM Setting	Std Time
2.5A	5A				1.0A	2A		1.0	
2.5A	10A				1.0A	4A		1.0	
2.5A	25A				1.0A	10A		1.0	
5.0A	10A				2.0A	4A		1.0	
5.0A	10A				2.0A	4A		0.5	
5.0A	10A				2.0A	4A		0.2	
5.0A	10A				1.0A	2A		0.1	

Plug Setting	Starting Current R	Y	B	Plug Setting	Starting Current
2.5A 5.0A				1.0A 2.0A	

High Set	Operating Current R	Y	B	High Set	Operating Current

Secondary Wiring Insulation Resistance : _____ Mohms

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER (HVTE)

I, _____, a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/ BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____
Signature of HVTE Licence No Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW) :

The above test results are satisfactory and acceptable to me

_____ _____ _____
Name and Signature of LEW-in-charge of above-mentioned installation Licence No Date

(* Delete whichever is not applicable)

REF: PU(ES)REG R 5 & 7 (TR 1A)

PILOT WIRE PROTECTION RELAY OPERATION TEST

REF NO: _____

NAME OF CONSUMER _____

INSTALLATION ADDRESS _____

DATE OF TEST _____ MAKE OF SWITCHGEAR _____

SERVICE TYPE : * Direct from: PowerGrid / Landlord Panel No/Circuit Name _____

PARTICULARS OF RELAYS :

Test Relay Make : _____ Type : _____ S/No. : _____

Dummy Relay Make : _____ Type : _____ S/No. : _____

TEST RESULTS:

Connection	Secondary Operating Current (Amp)		Relay Operating Coil Current (DC mA) - *Test Relay Operated*		Pilot Current (AC mA)
	Test Relay	Dummy Relay	Test Relay	Dummy Relay	
R - E					
Y - E					
B - E					
R - Y					
Y - B					
B - R					

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER (HVTE):

I, _____, a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____

Signature of HVTE Licence No. Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW) :

The above test results are satisfactory and acceptable to me.

_____ _____ _____

Name and Signature of LEW-in-charge of above-mentioned installation Licence No. Date

(* Delete whichever is not applicable)

PRIMARY INJECTION TEST ON CT RATIO, POLARITY & AMMETERS

REF NO: _____

NAME OF CONSUMER _____

INSTALLATION ADDRESS _____ DATE OF TEST . _____

MAKE OF SWITCHGEAR : _____ PANEL NO./CIRCUIT NAME _____

PARTICULARS OF CTs

	Connection	Ratio	Class	Burden	S/No
0/C & E/F CT :					
_____ CT : (Main Protection)					

TEST RESULTS :

Primary Current (A)									CT
Phase Injected	RY	YB	BR	Y-E	RY	YB	BR	Y-E	for
Secondary Rϕ									O/C
Current Yϕ									&
(A) Bϕ									E/F
Spill Current (mA)				A				A	
Secondary Rϕ									*SOLKOR
Current Yϕ									R/RF or
(A) Bϕ									HOR4
Spill Current (mA)				A				A	

Ammeter Accuracy Test

Primary Current	Ammeter Reading Rϕ	Yϕ	Bϕ

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER (HVTE)

I, _____, a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/ BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____

Signature of HVTE | Licence No | Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW) :

The above test results are satisfactory and acceptable to me.

_____ _____ _____

Name and Signature of LEW-in-charge of above-mentioned installation | Licence No | Date

(* Delete whichever is not applicable)

PRIMARY CURRENT INJECTION TEST ON CIRCUIT BREAKER

REF NO: _____

NAME OF CONSUMER _____

INSTALLATION ADDRESS _____

DATE OF TEST _____ MAKE OF SWITCHGEAR _____ PANEL NO. _____

APPROVED LOAD : _____ kW at _____ Volts SERVICE TYPE * Direct from: PowerGrid / Landlord

PARTICULARS OF CIRCUIT BREAKER : * ACB / MCCB

Make: _____ Type: _____ Short Circuit Capacity: _____ kA for _____ sec(s)

Serial No. _____ Rated Voltage: _____ V Rated Current: _____ A Shunt Trip Coil Rated Voltage: _____ V

PARTICULARS OF PROTECTION EQUIPMENT :

	Make	Type	CT Ratio	Class	Burden
O/C Relay :					
E/F Relay :					

TEST RESULTS:

Phase Injected	Secondary Current Setting (A)	Primary Trip Current (A)	Tripping Time (s)	Spill Current (mA)	
R - N Y - N B - N (set for o/c)	(sealed)		(sealed)	(50%)	(100%)
* R/Y/B - E (set for E/F)	(sealed)		(sealed)		

* Back-up Fuse Rating / Direct Acting Setting (A) : R _____ Y _____ B _____

Direct Acting Tripping Time (sec) : R _____ Y _____ B _____

Hand Trip : * Satisfactory / Unsatisfactory

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER: (HVTE)

I, _____, a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____

Signature of HVTE Licence No. Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW) :

The above test results are satisfactory and acceptable to me.

_____ _____ _____

Name and Signature of LEW-in-charge of above-mentioned installation Licence No. Date

(* Delete whichever is not applicable)

HIGH VOLTAGE POWER FREQUENCY TEST ON SWITCHGEAR

REF NO: _____

NAME OF CONSUMER : _____

INSTALLATION ADDRESS : _____

DATE OF TEST: _____ MAKE OF SWITCHGEAR: _____

PARTICULARS OF SWITCHGEAR :

PANEL NO: _____ TYPE: _____ RATED CURRENT: _____AMPS

RATED VOLTAGE: _____ SHORT CIRCUIT CAPACITY: _____KA for _____sec(s)

SERIAL NO : Incoming No.1 _____ Incoming No.2 _____ Bus-section _____

TEST RESULTS:

Test Connection	Insulation Resistance By 5kV Megger (Mohms)		Test Voltage (kV)	Time (Mins)	Leakage Current (mA)
	Before Test	After Test			
RN stressed Y & BN earthed					
YN stressed B & RN earthed					
BN stressed R & YN earthed					
CB open, upper poles stressed & lower poles earthed					
PT Test					

DETAILS OF HIGH VOLTAGE TESTING EQUIPMENT:

TYPE _____ SERIAL NO _____ CALIBRATED ON _____ BY : _____

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER (HVTE)

I,_____,a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____

Signature of HVTE Licence No. Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW) :

The above test results are satisfactory and acceptable to me.

_____ _____ _____

Name and Signature of LEW-in-charge of above-mentioned installation Licence No. Date

HIGH VOLTAGE DC TEST ON CABLE

REF NO: _____

NAME OF CONSUMER _____

INSTALLATION ADDRESS _____

DATE OF TEST _____ PANEL NO./CIRCUIT NAME _____

PARTICULARS OF CABLE :

MANUFACTURER _____ TYPE: _____ RATED VOLTAGE: _____ kV

CROSS-SECTIONAL AREA: _____ mm^2 LENGTH: _____ metres

TEST RESULTS:

Test Voltage		kV	kV	kV
Test Connection				
Insulation Resistance (Mohms)	Before Test			
	After Test			
Time in Minutes		Leakage Current (mA)	Leakage Current (mA)	Leakage Current (mA)
0				
1				
3				
5				
7				
9				
11				
13				
15				

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER (HVTE) :

I, _____, a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/ BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____

Signature of HVTE Licence No. Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW) :

The above test results are satisfactory and acceptable to me.

_____ _____ _____

Name and Signature of LEW-in-charge. of above-mentioned installation Licence No. Date

REF: PU(ES) REG R 5 & 7(TR6)

TRANSFORMER RATIO TEST

REF NO: _____

NAME OF CUSTOMER _____

INSTALLATION ADDRESS _____

DATE OF TEST . _____ MAKE OF TRANSFORMER : _____

PARTICULARS OF TRANSFORMER

Make: _____ Type: _____ Capacity: _____MVA. Serial No _____

Rated Voltage: _____ / _____KV % Impedance: _____ Vector Group_____

TEST RESULTS

Tap No	Voltage (kV)		Standard Ratio	Measured Ratio Value		
	HV	LV		A-B/b-n	B-C/c-n	C-A/a-n

DECLARATION BY HIGH VOLTAGE TESTING ENGINEER (HVTE)

I,_____,a duly appointed HVTE under regulation 20 of the Electrical Workers and Contractors Licensing Regulations 1997, declare that the above tests are carried out in accordance with SS/ BS/ equivalent standards and to the best of my knowledge, the results comply with the relevant standards and/or engineering practice.

_____ _____ _____

Signature of HVTE Licence No Date

ENDORSEMENT BY LICENSED ELECTRICAL WORKER (LEW) :

The above test results are satisfactory and acceptable to me.

_____ _____ _____

Name and Signature of LEW-in-charge of above-mentioned installation Licence No Date

REPUBLIC OF SINGAPORE

GOVERNMENT GAZETTE

SUBSIDIARY LEGISLATION SUPPLEMENT

Published by Authority

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No. S 64

ELECTRICAL WORKERS AND CONTRACTORS LICENSING ACT (CHAPTER 89)

ELECTRICAL WORKERS AND CONTRACTORS LICENSING REGULATIONS 1997

ARRANGEMENT OF REGULATIONS

PART I

PRELIMINARY

Regulation

1. Citation and commencement
2. Definitions

PART II

ELECTRICAL CONTRACTORS

3. Licensing of electrical contractors
4. Conditions for licensing as electrical contractor
5. Electrical worker registered as employee of electrical contractor not to be licensed as electrical contractor, etc.

Regulation

6. Application for licence or renewal of licence
7. Fee not refundable
8. Licence to be signed by authorised officer, etc.
9. Duties of licensed electrical contractor
10. Cancellation, suspension, etc., of licence
11. Reduction of period of suspension, etc.
12. Replacement licence
13. Electrical Contractors' Register

PART III

ELECTRICAL WORKERS

14. Grades of licence
15. Qualifications
16. Authority conferred by licence
17. Application for licence or renewal of licence
18. Fee not refundable
19. Licence to be signed by authorised officer, etc.
20. Appointment as high voltage testing engineer or small installation tester
21. Authority of high voltage testing engineer and small installation tester
22. Cancellation or suspension of appointment
23. Responsibility of holder of licence for notices, etc., to be given
24. Responsibility of holder of licence in supervisory capacity
25. Delivery of licence to Board
26. Cancellation, suspension, etc., of licence
27. Reduction of period of suspension, etc.
28. Replacement licence
29. Electrical Workers' Register
30. Production of licence and giving of information to authorised officer

PART IV

MISCELLANEOUS

31. Penalties
32. Information from Register
33. Revocation and transitional provisions

The Schedule

No. S 66

PUBLIC UTILITIES ACT (CHAPTER 261)

PUBLIC UTILITIES (LICENCE TO USE OR OPERATE ELECTRICAL OR SUPPLY INSTALLATIONS) REGULATIONS 1997

ARRANGEMENT OF REGULATIONS

PART I

PRELIMINARY

Regulation

1. Citation and commencement
2. Definitions

PART II

LICENCE

3. Licence to use, work, etc., electrical or supply installation
4. Application for licence or renewal of licence
5. Fee not refundable
6. Display of licence
7. Licence to be signed by authorised officer, etc.
8. Reduction of period of suspension, etc.
9. Surrender of licence upon suspension or revocation
10. Replacement licence
11. Licensee to inform Board of cessation of employment by him of electrical worker
12. Register
13. Notification to Board of change of address
14. Information from register
15. Production of licence and giving of information to authorised officer
16. Penalty
17. Revocation and transitional provisions

The Schedule

No. S 67

PUBLIC UTILITIES ACT (CHAPTER 261)

PUBLIC UTILITIES (ELECTRICITY) REGULATIONS 1997

ARRANGEMENT OF REGULATIONS

PART I

PRELIMINARY

Regulation

1. Citation and commencement
2. Definitions

PART II

ELECTRICAL INSTALLATIONS

3. Person responsible for electrical installation
4. All apparatus, etc., to be of requisite standards
5. Cable with aluminium conductors not to be used in domestic electrical installation
6. Cable for concealed wiring in an installation
7. Board may require use of high-sensitivity earth leakage circuit breaker
8. Switchboard
9. High voltage switchboard
10. Adequate lighting where apparatus installed
11. Use of auto-transformers
12. Instructions for treatment of electric shock
13. Decorative lighting installation
14. Supply installation to be operated and used safely

PART III

WORK ON HIGH VOLTAGE APPARATUS

15. Definitions of this Part
16. Work to be carried out by authorised high voltage switching engineer or by competent person

Regulation

17. Duties of authorised high voltage switching engineer before commencement of work
18. Duties of authorised high voltage switching engineer upon completion of work
19. Where apparatus connected to source of supply of electricity outside control of authorised high voltage switching engineer

PART IV

PRESCRIBED ARTICLES

20. Definitions of this Part
21. Power to prescribe classes of electrical appliances, etc.
22. Application for approval to sell or hire out prescribed article
23. Certificate of approval
24. Fee not refundable
25. Modification subject to approval
26. Batch-testing
27. Certificate of approval not transferable
28. Replacement of certificate of approval
29. Cancellation, etc., of certificate of approval
30. Cancelled certificate of approval to be returned to Board
31. Registers
32. Submission of apparatus, etc., for test
33. Prohibition on use or sale of apparatus
34. Flexible cord used for connection to appliances to comply with International Colour Code

PART V

MISCELLANEOUS

35. Penalty
36. Revocation and transitional provisions

The Schedule

No. S 68

PUBLIC UTILITIES ACT
(CHAPTER 261)

PUBLIC UTILITIES (ELECTRICITY SUPPLY) REGULATIONS 1997

ARRANGEMENT OF REGULATIONS

Regulation

1. Citation and commencement
2. Definitions
3. Voltages for supply
4. Request for supply
5. Connection of electrical installation to supply line
6. Meters
7. Modification to electrical installation, etc.
8. Testing of electrical installation
9. Adjustments to electrical installation when interfering with supply to other consumers, etc.
10. Power to disconnect
11. Failure of supply to consumers
12. Penalties
13. Revocation

No. S 69

PUBLIC UTILITIES ACT (CHAPTER 261)

PUBLIC UTILITIES (CABLE DETECTION WORKERS) REGULATIONS 1997

ARRANGEMENT OF REGULATIONS

PART I

PRELIMINARY

Regulation

1. Citation and commencement
2. Definitions

PART II

APPLICATION FOR AND GRANT OF LICENCE

3. Application for licence or renewal of licence
4. Qualifications
5. Licence to be signed by an authorised officer, etc.

PART III

REGISTER OF LICENSEES

6. Register
7. Information from register

PART IV

DUTIES OF LICENSED CABLE DETECTION WORKERS

8. Duties of licensee
9. Tests and examinations

PART V

CANCELLATION AND SUSPENSION OF LICENCE

10. Cancellation, suspension, etc., of licence
11. Reduction of period of suspension
12. Return of cancelled or suspended licence

PART VI

GENERAL

Regulation

13. Replacement licence
14. Penalties
15. Revocation and transitional provisions
The Schedule