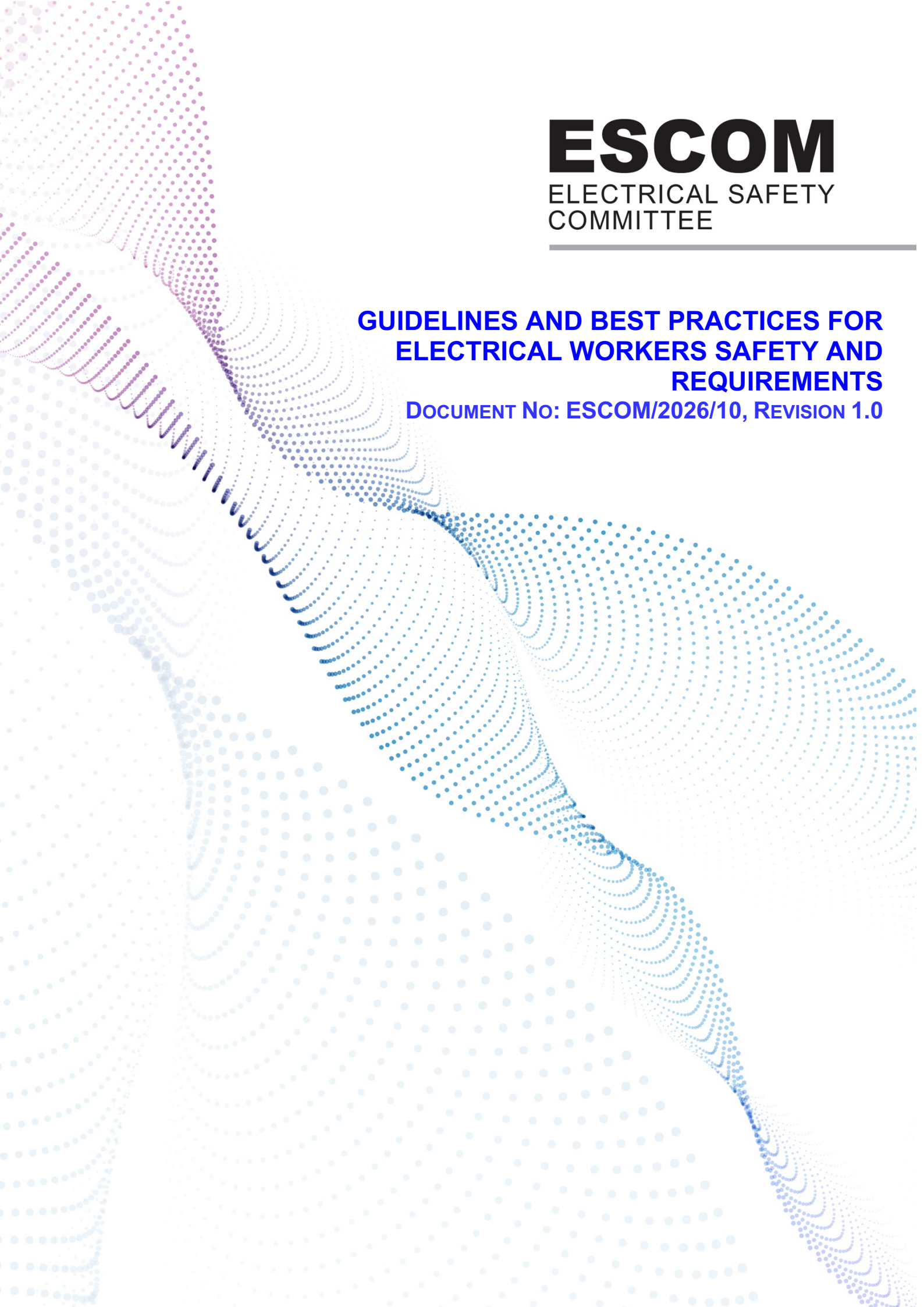




ESCOM

ELECTRICAL SAFETY
COMMITTEE

GUIDELINES AND BEST PRACTICES FOR ELECTRICAL WORKERS SAFETY AND REQUIREMENTS

DOCUMENT No: ESCOM/2026/10, REVISION 1.0

What is ESCOM?

The Safety, Health and Environment National Authority (SHENA) and Autoriti Elektrik Negara Brunei Darussalam (AENBD) established the Electrical Safety Committee or “ESCOM” in January 2023; with the objectives of promoting regulatory compliance and raising electrical safety standards within Brunei Darussalam.

Who are the ESCOM members?

The Electrical Safety Committee (ESCOM) comprises representatives and industry experts drawn from relevant government institutions and private organisations, collectively bringing extensive technical experience in electrical engineering, safety management, and industry practice.

ESCOM is chaired by a representative from the **Safety, Health and Environment National Authority (SHENA)**, with a **Deputy Chairperson appointed in accordance with the Committee’s Terms of Reference**. Subject matter experts from regulatory bodies, utilities, and industry may be invited to participate in specific working groups or provide technical input where required.

ELECTRICAL SAFETY BEST PRACTICES			
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Disclaimer:

This document was developed to provide guidance and recommendations, as well as to serve as an industry reference for best practices with the aim of improving electrical safety practices. This Guideline and Best Practices is not a statutory document and does not create or replace any legal obligations under the Workplace Safety and Health Act (Chapter 277) or its subsidiary regulations. In the event of any inconsistency, the provisions of the WSHA and its subsidiary regulations shall prevail. Accordingly, this document should not be construed as implying any liability nor should it be taken to encapsulate all the responsibilities and obligations of the law.

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1 INTRODUCTION

1.1 Background

Electrical safety encompasses the safe planning, handling, operation, inspection, testing and maintenance of electrical systems, electrical equipment after the risk assessment has been carried out. Unsafe electrical works, improper work practices, inadequate supervision and unauthorized electrical activities may contribute to electrical incidents including electrical shock, fire, equipment damage and other hazards which may result in injuries, fatalities and property damage.

With the increasing development of industrial, commercial, infrastructure and construction activities in Brunei Darussalam, there is a growing need to ensure that electrical works are carried out safely and by competent and authorized personnel with adequate technical knowledge, training and experience. Electrical works should therefore be properly supervised and carried out in accordance with recognized standards, applicable safety requirements and good industry practices.

Improper electrical work practices, poor workmanship and inadequate competency may compromise the safety of electrical systems and increase the risk of incidents. It is therefore important to promote safe work practices, proper supervision and competency awareness among personnel involved in electrical works and related activities.

The main objective of this document is therefore to provide guidance and reference on recommended industry practices relating to electrical works, competency expectations, safe work practices and safety considerations associated with electrical activities.

This document is also intended to support relevant authorities and industry stakeholders to strengthen electrical safety awareness, improve safety culture and encourage compliance with applicable laws, regulations and recognised industry standards in Brunei Darussalam.

1.2 General

This document shall be read in conjunction with the Electrical Installation Requirement (“EIR”), Workplace Safety and Health Act, Chapter 277 (“WSHA, Cap 277”), DES Safety Rules and System Operating Regulations, as well as other applicable laws, regulations, approved codes of practice and recognized standards relating to electrical safety and electrical works.

Collectively, these documents establish the fundamental requirements governing safe electrical work practices and electrical safety and shall serve as guidance references and/or minimum safety requirements.

For the purpose of this document, the terms “Employer”, “Principal”, “Occupier”, “Contractor” and “Electrical Workers” shall have the meanings assigned under the applicable laws, regulations and relevant authority requirements.

Where multiple duty holders are involved, each party shall discharge their respective duties in accordance with the applicable requirements and ensure effective coordination and cooperation to prevent unsafe conditions, unsafe acts and gaps in responsibilities associated with electrical works and related activities.

1.3 Purpose

This Guideline and Best Practices for Electrical Workers Safety and Requirements serves as a guidance and reference for competency expectations, safe work practices, supervision responsibilities and recommended industry practices associated with electrical works and related activities.

This document aims to provide guidance to relevant parties including employers, principals, occupiers, contractors, supervisors and electrical workers on the applicable safety requirements and considerations associated with electrical works.

Additionally, this document promotes the importance of engaging competent and authorized personnel for electrical works, implementing proper supervision and adopting safe work practices to reduce the risks associated with electrical hazards and unsafe work activities.

This document also aims to support continuous improvement in electrical safety awareness, competency development and compliance with recognized standards and regulatory requirements within Brunei Darussalam.

1.4 Scope

This document establishes guidance intended to enhance awareness and to reduce, so far as is reasonably practicable, the risks associated with unsafe electrical works, inadequate supervision, improper work practices and unsafe working conditions.

The scope of this document includes activities related to electrical installation works, operation, inspection, testing, maintenance and supervision of electrical systems and associated electrical equipment.

This document applies to electrical work activities associated with industrial, commercial, residential, government infrastructure and construction activities including maintenance, inspection and testing activities and other related electrical work operations.

In line with the said requirements, this document also includes guidance relating to competency expectations, supervision responsibilities, safe work practices and safety considerations associated with electrical works and related activities.

All electrical works and related activities should comply with the requirements of the EIR as well as other relevant recognized standards including standards issued by the International Electrotechnical Commission ("IEC"), British Standards ("BS") or their equivalent.

Examples of typical electrical and non-electrical work activities are provided in Appendix 1 and Appendix 2 for reference.

2 ACRONYMS AND ABBREVIATIONS

AENBD	Autoriti Elektrik Negara Brunei Darussalam
BS	British Standards
DES	Department of Electrical Services
EIR	Electrical Installation Requirement
ESCOM	Electrical Safety Committee
IEC	International Electrotechnical Commission
PPE	Personal Protective Equipment
SHENA	Safety, Health and Environment National Authority
DES SR/SOR	DES Safety Rules and System Operating Regulations
WSHA, Cap 277	Workplace Safety and Health Act, Chapter 277

3 APPLICABLE STANDARDS AND INDUSTRY GUIDANCE

All principals, employers, occupiers, contractors, self-employed persons, electrical workers and persons carrying out electrical works shall comply with applicable laws, regulations, standards and relevant authority requirements associated with electrical safety and electrical works.

Applicable laws, regulations, standards and guidance documents include, but are not limited to, the following:

- a) Workplace Safety and Health Act, Chapter 277 (“WSHA, Cap 277”);
- b) Workplace Safety and Health (General Provisions) Regulations;
- c) Electricity Act, Chapter 223;
- d) Electrical Installation Requirement (“EIR”);
- e) DES Safety Rules and System Operating Regulations (“SR/SOR”);
- f) Applicable British Standards (“BS”), International Electrotechnical Commission (“IEC”) standards or equivalent recognized international standards; and
- g) Other relevant guidelines, approved codes of practice and industry guidance documents issued by the relevant authorities.

Electrical works and related activities should be carried out in accordance with the applicable requirements, recognized standards and good industry practices to ensure continued electrical safety and safe work practices.

4 GENERAL REQUIREMENTS

4.1 General

Electrical works shall only be carried out by competent and authorized personnel with adequate technical knowledge, training, qualification and experience appropriate to the scope of work being performed.

Unsafe electrical works, improper use of electrical equipment, inadequate supervision, poor workmanship and failure to follow safe work practices may result in electrical incidents including electric shock, fire, equipment damage and other workplace hazards.

All parties involved in electrical works should take all reasonably practicable measures to ensure that electrical activities are carried out safely and in accordance with applicable safety requirements such as Permit to Work (PTW) where required, recognized standards and established work procedures.

Electrical systems, electrical equipment and associated accessories used during electrical works should be suitable for the intended application and operating conditions.

4.2 Planning and Supervision

Prior to commencement of electrical works, proper planning and supervision should be implemented to ensure that work activities are carried out safely and in accordance with applicable safety requirements and approved procedures.

The planning process may include, but is not limited to, the following:

- a) Identification of work activities and associated hazards;
- b) Determination of competent and authorized personnel for the work activities;
- c) Identification of applicable safety requirements and procedures;
- d) Determination of appropriate supervision arrangements; and
- e) Implementation of suitable control measures to minimize risks associated with electrical hazards.

Electrical works should be carried out under appropriate supervision by competent personnel with sufficient technical knowledge and experience relevant to the work activities being performed.

4.3 Tools, Equipment and Personal Protective Equipment (PPE)

Tools, equipment and test instruments used during electrical works shall be suitable for the intended application, properly maintained and free from visible defects.

Defective, damaged or unsuitable tools and equipment shall not be used and shall be removed from service immediately.

Personnel carrying out electrical works should utilize suitable personal protective equipment ("PPE") appropriate to the work activities and associated hazards.

The PPE may include, but is not limited to, the following:

- a) Safety helmets;
- b) Insulated gloves;
- c) Safety footwear;
- d) Eye, face and ear protection; and
- e) Other protective equipment appropriate to the work activities and associated hazards.

All PPE should be properly maintained and used in accordance with the applicable safety requirements and manufacturer's recommendations where applicable.

4.4 Housekeeping and Work Environment

Work areas involving electrical activities should be maintained in a safe and orderly condition to minimize hazards and unsafe working conditions.

Good housekeeping practices should be maintained throughout the duration of the work activities including proper management of cables, tools, equipment and waste materials.

Electrical work areas should be adequately illuminated and free from unnecessary obstructions that may interfere with safe movement and work activities.

Where electrical works are carried out in outdoor or exposed environments, additional precautions should be implemented to protect personnel and equipment from adverse environmental conditions such as rain, excessive heat and moisture.

4.5 Emergency Awareness

Personnel involved in electrical works should be aware of emergency procedures and appropriate actions to be taken in the event of electrical incidents, fire, electric shock or other emergencies.

Emergency contact arrangements, emergency isolation points, emergency equipment, first aid kits and firefighting equipment should be made known and accessible to relevant personnel where applicable.

Any electrical incident, unsafe condition or abnormal condition associated with electrical systems and equipment should be reported immediately to the responsible personnel or relevant parties for appropriate actions.

5 ELECTRICAL PERSONNEL COMPETENCY REQUIREMENTS

5.1 General

Electrical works should only be carried out by competent and authorized personnel with adequate technical knowledge, training, qualification and experience appropriate to the scope of work being performed.

Personnel involved in electrical works should possess sufficient understanding of electrical hazards, applicable safety requirements, safe work practices and operational procedures associated with the electrical systems and equipment under their responsibility.

Employers, principals, occupiers and contractors should ensure that personnel engaged for electrical installation, operation, inspection, testing and maintenance activities are competent and capable of carrying out such works safely and effectively.

5.2 Competency and Qualification Requirements

Personnel carrying out electrical works should possess qualifications relevant to the electrical field of work being performed. Such qualifications may include technical certificates, diplomas, degree qualifications or equivalent recognized qualifications related to electrical engineering, electrical installation or electrotechnical disciplines.

Competency should also include practical experience, technical capability and understanding of applicable safety requirements and safe work practices associated with electrical works.

Personnel involved in specialized electrical works including high voltage operation, switching activities, testing, commissioning and maintenance activities should possess appropriate competency and training relevant to the work activities.

5.3 Training Requirements

Electrical personnel should undergo appropriate safety and technical training relevant to their scope of work and associated responsibilities.

Recommended training may include, but is not limited to, the following:

- a) General electrical safety awareness;
- b) Contractor safety awareness;
- c) Safe work practices and electrical hazard awareness;
- d) Electrical installation and maintenance practices;
- e) Inspection and testing procedures;
- f) High voltage and low voltage operational safety;
- g) Electrical pylon climbing and rigging training, where applicable to the scope of work; and
- h) Applicable safety rules, regulations and industry requirements.

Refresher training should also be conducted periodically to ensure continued competency and awareness of current industry practices and applicable safety requirements.

Personnel involved in electrical works associated with working at height activities should possess adequate competency, training and awareness of the associated risks, safe work procedures, emergency response requirements and applicable safety precautions. Where electrical works involve overhead transmission/distribution structures or similar specialized activities, additional competency and training, including electrical pylon climbing and rigging, should be provided where applicable.

5.4 Level of Authorization and Supervision

Personnel carrying out electrical works should be appropriately authorized by the DES or in accordance with relevant authority requirements prior to performing electrical activities.

The level of authorization should correspond to the competency, experience and scope of work assigned to the personnel.

Electrical works involving higher risks (i.e. high voltage works, medium voltage works, work at height & working in confined space), specialized equipment or complex systems should be carried out under appropriate supervision by competent personnel with sufficient technical knowledge and experience relevant to the work activities.

Supervising personnel should ensure that:

- a) Safe work practices are implemented and followed;
- b) Works are carried out by competent and authorized personnel;
- c) Appropriate safety precautions are maintained; and

- d) Work activities comply with applicable safety requirements and approved procedures.

5.5 Responsibilities of Electrical Personnel

Electrical personnel should take all reasonably practicable measures to ensure that electrical works are carried out safely and in accordance with applicable safety requirements and established work procedures.

The responsibilities of electrical personnel may include, but are not limited to, the following:

- a) Carrying out electrical works within the scope of their competency and authorization;
- b) Complying with applicable safety requirements, procedures and instructions;
- c) Properly utilizing tools, test instruments and personal protective equipment (“PPE”);
- d) Reporting unsafe conditions, unsafe acts, defects or abnormalities associated with electrical systems and equipment;
- e) Maintaining good housekeeping and safe working conditions; and
- f) Cooperating with supervising personnel and relevant parties to ensure safe execution of work activities.

Personnel should not carry out electrical works beyond their competency level outside the scope of their electrical worker registered categories or interfere with electrical systems and equipment without proper authorization, supervision and guidance.

5.6 Fitness for Work

Personnel involved in electrical works should be medically fit certified by registered hospital/clinics to perform the assigned work activities safely and effectively.

Personnel should not carry out electrical works while under the influence of alcohol, drugs, medication or other conditions which may impair judgement, alertness or physical capability.

Where applicable, employers and responsible parties should implement suitable arrangements to manage fatigue, heat stress and other conditions that may affect the safety and performance of personnel involved in electrical works.

6 ELECTRICAL WORK REQUIREMENTS AND SAFE WORK PRACTICES

6.1 General

Electrical works should be properly planned, assessed, supervised and carried out in accordance with applicable safety requirements, recognized standards and established work procedures.

Prior to commencing any electrical work, a suitable and sufficient risk assessment should be conducted to identify electrical and associated workplace hazards (i.e. hazard identification & hazard operability), evaluate the risks arising from the work activities, and determine appropriate control measures.

The risk assessment should take into account, where relevant, the nature and scope of the work, condition of electrical installations and equipment, competency of personnel, work environment, interaction with other work activities, and any reasonably foreseeable changes or abnormal conditions.

All parties involved in electrical works should ensure that all reasonably practicable measures and appropriate controls are taken to eliminate or minimize risks associated with electrical hazards and unsafe work activities.

Failure to adequately identify, assess and control electrical risks may result in electric shock, electrocution, fire, explosion, equipment damage and infringe workplace safety and health regulations.

6.2 Safe Work Practices

Personnel carrying out electrical works should comply with established work procedures, applicable safety requirements and relevant instructions issued by the responsible parties.

Appropriate safety precautions should be implemented prior to commencement of electrical works to minimize risks associated with electrical hazards.

Safe work practices may include, but are not limited to, the following:

- a) Ensuring electrical works are carried out by competent and authorized personnel;
- b) Ensuring proper supervision during work activities where applicable;
- c) Complying with the established Permit To Work (PTW) system and applicable safety procedures, including the identification of the Permit Issuer, Permit Approver, Worksite Supervisor and other responsible persons, where required to ensure that hazardous work activities, associated risks and necessary safety precautions are properly identified, communicated and controlled in accordance with the applicable safety requirements;

- d) Where a Permit To Work (PTW) system is required, the associated risk assessment shall be completed prior to the commencement of work, and the respective responsibilities of the Permit Issuer, Permit Approver, Worksite Supervisor and other designated persons shall be clearly established in accordance with the applicable safety procedures and relevant authority requirements.
- e) Implementing proper isolation procedures before commencement of work activities where reasonably practicable, i.e. prove test the circuit(s) isolated/dead and apply LOTO (Lockout/Tagout) procedure;
- f) Utilizing suitable tools, equipment and personal protective equipment ("PPE");
- g) Implementing appropriate safety precautions and control measures where electrical works involve working at height activities;
- h) Ensuring that work at height activities is supported by appropriate risk assessments, supervision and control measures to minimize the risk of falls and related hazards;
- i) Maintaining good housekeeping and safe working conditions; and
- j) Reporting unsafe conditions, unsafe acts and abnormalities associated with electrical systems and equipment.

6.3 Use of Tools and Equipment

Tools, equipment and test instruments used during electrical works shall be suitable for the intended application and appropriate to the work activities being performed.

Personnel should ensure that tools, equipment and test instruments are properly maintained, inspected and ensured to be in safe working condition prior to commencement of electrical works.

Defective, damaged or unsuitable tools and equipment shall not be used and shall be removed from service immediately.

Where applicable, suitable test instruments should be utilized to verify the condition and status of electrical systems and equipment prior to commencement of work activities.

6.4 Electrical Work Areas

Electrical work areas should be maintained in a safe and orderly condition throughout the duration of the work activities.

Appropriate warning signs, barriers or access control measures should be implemented where necessary to prevent unauthorized access to areas involving electrical hazards.

Temporary cables, extension leads and portable equipment shall be suitably selected, arranged and protected to minimize trip hazards, accidental damage and unsafe working conditions. Extension leads shall be appropriate for the intended environment and duty, adequately protected against mechanical damage and moisture, and fitted with suitable protective devices where applicable i.e. PVC cable for non-construction site and Neoprene cable for construction site with minimum IP54 protection rating. The use of excessively long extension leads should be avoided unless necessary and appropriate control measures are implemented.

Work areas should also be adequately illuminated and accessible to allow safe movement and work activities.

6.5 Emergency Awareness and Incident Reporting

Personnel involved in electrical works should be aware of emergency procedures and appropriate actions to be taken in the event of electrical incidents, fire, electric shock or other emergencies.

Emergency contact arrangements, emergency isolation points and firefighting equipment should be made known and accessible to relevant personnel where applicable.

Any electrical incident, unsafe condition, unsafe act or abnormal condition associated with electrical systems and equipment should be reported immediately to the responsible personnel or relevant parties for appropriate actions and follow-up measures. Where applicable, incident reporting shall also be carried out in accordance with the reporting requirements and procedures established by the SHENA as per Appendix 3 and other relevant authorities. Organizations should establish appropriate incident reporting and communication procedures to ensure timely notification, investigation and implementation of corrective and preventive actions.

7 INSPECTION, TESTING AND MAINTENANCE

7.1 General

Electrical systems, electrical equipment and associated accessories should be inspected, tested and maintained periodically to ensure continued safety, reliability and proper operation.

Inspection, testing and maintenance activities should be carried out by competent and authorized personnel with appropriate technical knowledge and experience relevant to the work activities.

Unsafe conditions, defects, abnormalities or damaged electrical equipment identified during inspection and maintenance activities should be rectified appropriately prior to continued use where reasonably practicable.

7.2 Inspection and Testing

Inspection and testing activities should be conducted in accordance with applicable safety requirements, recognized standards and established work procedures.

Inspection and testing activities may include, but are not limited to, the following:

- a) Visual inspection of electrical systems and equipment;
- b) Inspection of cables, connections and accessories;
- c) Verification of isolation and protective arrangements;
- d) Inspection of tools, equipment and personal protective equipment ("PPE");
and
- e) Functional checks and testing of electrical equipment where applicable.

Where applicable, inspection and testing records should be maintained for reference and verification purposes.

Where an independent inspection is required by the relevant authority, project specification or applicable contractual requirements, such inspection should be carried out by an approved inspection body or competent third party independent of the contractor responsible for the installation or construction works, to minimize potential conflicts of interest and maintain the integrity of the inspection process.

7.3 Maintenance Activities

Maintenance activities involving electrical systems and equipment should be properly planned and carried out in accordance with established work procedures and applicable safety requirements.

Prior to commencement of maintenance activities, appropriate precautions should be implemented to minimize risks associated with electrical hazards and unsafe conditions.

Only suitable tools, equipment and replacement components appropriate to the intended application and operating conditions should be utilized during maintenance activities.

7.4 Defective or Unsafe Equipment

Defective, damaged or unsafe electrical systems, electrical equipment and associated accessories should not be used and should be removed from service immediately where necessary.

Temporary repairs and unsafe modifications that may compromise electrical safety should be avoided.

Appropriate corrective actions should be implemented by competent personnel prior to returning the equipment or electrical systems into operation.

7.5 Documentation and Records

Relevant inspection, testing and maintenance records should be properly maintained where applicable.

The documentation may include, but is not limited to, the following:

- a) Inspection records;
- b) Testing records;
- c) Maintenance records;
- d) Defect reports; and
- e) Corrective action records.

Such records may assist in monitoring the condition, safety and operational status of electrical systems and equipment.

8 RESPONSIBILITIES OF RELEVANT PARTIES

8.1 General

All parties involved in electrical works should take all reasonably practicable measures to ensure that electrical works are carried out safely and in accordance with applicable safety requirements, recognized standards and established work procedures.

Where multiple duty holders are involved, each party should discharge their respective responsibilities and ensure effective coordination and cooperation to prevent unsafe conditions, unsafe acts and gaps in responsibilities associated with electrical works and related activities.

8.2 Responsibilities of Employers, Principals and Occupiers

Employers, principals and occupiers should ensure that electrical works carried out under their control or management are conducted safely and in accordance with applicable safety requirements and recognized industry practices.

The responsibilities may include, but are not limited to, the following:

- a) Ensuring electrical works are carried out by competent and authorized personnel;
- b) Providing appropriate supervision for electrical work activities;
- c) Providing suitable tools, equipment and personal protective equipment ("PPE");
- d) Ensuring safe working conditions and proper housekeeping practices;
- e) Ensuring applicable safety procedures and requirements are communicated to relevant personnel; and
- f) Taking appropriate actions to address unsafe conditions, unsafe acts and electrical hazards.

8.3 Responsibilities of Contractors

Contractors carrying out electrical works should ensure that work activities are conducted safely and in accordance with applicable safety requirements, established work procedures and recognized industry practices.

The responsibilities of contractors may include, but are not limited to, the following:

- a) Deploying competent and authorized personnel for electrical work activities;
- b) Ensuring personnel are adequately supervised where applicable;
- c) Ensuring electrical workers performing activities under the applicable DES Electrical Worker categories (for example, E01, E02, E03 and E05) possess the required competency, relevant training and a valid Registered Electrical Worker registration appropriate to the scope of work being undertaken.

Any non-electrical work activities carried out in the vicinity of electrical system should acquire General Worker pass card;

- d) Ensuring tools, equipment and electrical accessories used are suitable and safe for the intended application;
- e) Complying with applicable safety requirements and instructions issued by the responsible parties; and
- f) Reporting unsafe conditions, incidents and abnormalities associated with electrical systems and equipment.

8.4 Responsibilities of Supervising Personnel

Supervising personnel should ensure that electrical works under their supervision are carried out safely and in accordance with established work procedures and applicable safety requirements.

The responsibilities of supervising personnel may include, but are not limited to, the following:

- a) Monitoring electrical work activities and work conditions;
- b) Ensuring works are carried out by competent and authorized personnel;
- c) Ensuring safe work practices and safety precautions are implemented;
- d) Taking appropriate actions to address unsafe conditions and unsafe acts; and
- e) Communicating relevant safety information and instructions to personnel involved in the work activities.

8.5 Responsibilities of Electrical Personnel

Electrical personnel should comply with applicable safety requirements, established work procedures and relevant instructions associated with the work activities being performed.

Electrical personnel should also:

- a) Carry out work activities within the scope of their competency and level of authorization;
- b) Where applicable, possess a valid DES Electrical Workers Pass Card corresponding to the category of electrical work being performed (for example, E01, E02, E03 or E05);
- c) Utilize suitable tools, equipment and personal protective equipment ("PPE");
- d) Maintain safe working conditions and good housekeeping practices;
- e) Report unsafe conditions, unsafe acts and electrical hazards to the responsible personnel; and
- f) Cooperate with relevant parties to ensure safe execution of electrical works and related activities.

9 COMPLIANCE AND SAFETY CONSIDERATIONS

9.1 General

All Registered Electrical Workers involved in electrical works and General Workers carrying out non-electrical work activities shall comply with applicable laws, regulations, recognized standards and relevant authority requirements associated with electrical safety and electrical works.

Failure to comply with applicable safety requirements, established work procedures and recognized industry practices may increase the risks associated with electrical hazards and unsafe work activities.

9.2 Unsafe Conditions and Unsafe Acts

Unsafe conditions, unsafe acts and unsafe work practices associated with electrical works should be identified, reported and addressed appropriately to minimize risks of electrical incidents and workplace hazards.

Examples of unsafe conditions and unsafe acts may include, but are not limited to, the following:

- a) Carrying out electrical works without proper competency or level of authorization;
- b) Permitting or carrying out electrical works without a valid DES Electrical Workers Pass Card where required, including the use of expired, suspended or invalid pass cards;
- c) Improper use of tools, equipment or personal protective equipment ("PPE");
- d) Use of defective or damaged electrical equipment and accessories;
- e) Failure to implement appropriate supervision or safety precautions; and
- f) Unauthorized modification or interference with electrical systems and equipment.

Appropriate corrective and preventive actions should be implemented where necessary to prevent the recurrence of unsafe conditions and unsafe work practices.

9.3 Investigations and Follow-Up Actions

Where applicable, investigations and follow-up actions should be conducted to identify contributing factors and to improve electrical safety awareness and work practices.

Relevant parties should also encourage continuous improvement in electrical safety practices through effective communication, supervision, training and compliance with applicable safety requirements and recognized industry practices.

10 REFERENCES

1. Workplace Safety and Health Act, Chapter 277 (“WSHA, Cap 277).
2. Workplace Safety and Health (Construction) Regulations.
3. Electricity Act, Chapter 223.
4. Electrical Installation Requirement (“EIR”).
5. DES Safety Rules and System Operating Regulations (“SR/SOR”).
6. DES Electrical Worker Registration and Pass Card Issuance Policy.
7. Guidelines for Electrical Workers’ Pass Card Registration for Contractors.
8. International Electrotechnical Commission (“IEC”) Standards.
9. British Standards (“BS”).
10. Relevant guidelines, approved codes of practice (ACOP), industry guidance notes (IGN) and other industry guidance documents issued by the relevant authorities including SHENA and other applicable authorities.

APPENDIX 1: TYPICAL ELECTRICAL WORK ACTIVITIES

1. Domestic & Industrial:
 - New installation
 - Additional installation
 - Renovation & extension
2. Installation of Distribution Board, Main Switch Board, Feeder Pillars, Overhead Lines
3. Street Lightings
4. Earthing and lightning protection
5. Portable Generator

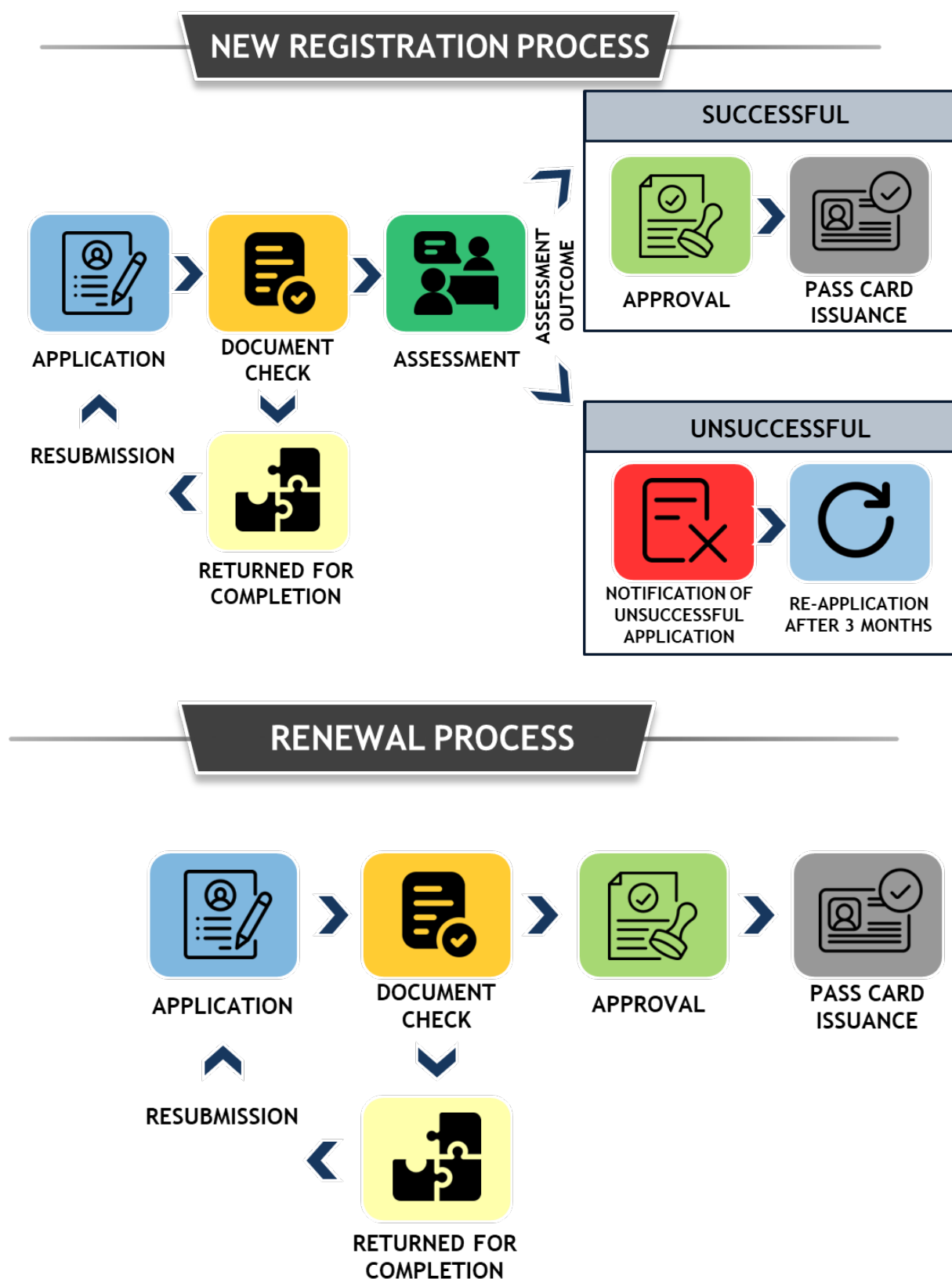
APPENDIX 2: TYPICAL NON-ELECTRICAL WORK ACTIVITIES

- House keeping i.e. cleaning, grass cutting, weeding, etc.
- Wayleave clearance
- Civil works
- Labor works
- Driver
- Non-electrical technical services i.e. fire alarm & firefighting system maintenance, CCTV, etc.

APPENDIX 3: INCIDENT REPORTING FLOW



APPENDIX 4: DES ELECTRICAL WORKERS PASS CARD APPLICATION PROCESS



GLOSSARY

Authorized Personnel	:	personnel permitted by DES or relevant authority requirements to carry out specified work activities.
Competent Person	:	a person possessing adequate knowledge, technical training, qualification and experience to carry out assigned work activities safely and effectively.
Contractor	:	any person or organization engaged to carry out work activities or provide services associated with electrical works.
Electrical Hazard	:	a hazard associated with electrical energy which may cause electric shock, burn, arc flash, fire, explosion or other injuries and damages.
Electrical Personnel	:	personnel involved in electrical works and related activities.
Electrical System	:	a system associated with generation, transmission, distribution, supply or utilization of electrical energy.
Electrical Work	:	work activities associated with electrical systems, electrical equipment and associated accessories including installation, operation, inspection, testing and maintenance activities.
Electrical Workers Pass Card	:	a pass card issued by the Department of Electrical Services (DES) to electrical workers who have satisfied the applicable competency and registration requirements under the DES Electrical Workers Registration and Pass Card Issuance Policy.
Employer	:	has the meaning assigned under the Workplace Safety and Health Act, Chapter 277.
General Worker	:	A person engaged to carry out general or non-electrical duties in connection with electrical works but who is not authorized to undertake electrical work requiring registration under DES Pass Card.
Independent Inspection Body:		A competent inspection organization that is independent from the contractor responsible for the installation or construction work and appointed to carry out inspection, testing or certification where required.

Inspection	:	activity involving visual examination or checking of electrical systems, equipment or work conditions to identify defects, abnormalities or unsafe conditions.
Isolation	:	disconnection of electrical systems or equipment from all relevant sources of electrical energy to prevent energization.
Live Equipment	:	electrical systems or equipment which are energized or electrically charged.
Maintenance	:	activities carried out to preserve or restore the condition and operational reliability of electrical systems and equipment.
Occupier	:	has the meaning assigned under the Workplace Safety and Health Act, Chapter 277.
Permit to Work (PTW)	:	A formal documented system used to authorize, control and communicate work activities that involve specified hazards or higher-risk operations, ensuring that appropriate safety precautions have been implemented before work commences.
PPE	:	personal protective equipment used to minimize exposure to workplace hazards and risks.
Principal	:	has the meaning assigned under the Workplace Safety and Health Act, Chapter 277.
Risk Assessment	:	A systematic process of identifying hazards, evaluating the associated risks and implementing appropriate control measures to eliminate or reduce the risks to an acceptable level.
Registered Electrical Worker	:	A person who has been approved and registered by DES and issued a valid DES Pass Card to carry out electrical works within the scope of their approved registration category.
Safe Work Practices	:	work methods and procedures implemented to minimize risks associated with workplace hazards and unsafe conditions.
Shall	:	indicates a mandatory requirement.
Should	:	indicates a recommendation or preferred course of action.
Test Instrument Calibration	:	The process of comparing and adjusting a measuring or test instrument against a recognized

		standard to ensure the accuracy and reliability of its measurements.
Testing	:	activity conducted to verify the condition, functionality or operational status of electrical systems and equipment.
Unsafe Act	:	any act or behavior that may increase the likelihood of accidents, incidents or unsafe conditions.
Unsafe Condition	:	any condition or circumstance that may expose personnel, equipment or property to risks of injury, damage or incidents.
Worksite Supervisor	:	A competent person appointed to supervise work activities at the worksite and ensure that work is carried out safely and in accordance with the approved work procedures and applicable safety requirements.