

**GOVERNMENT OF MEGHALAYA
INSPECTORATE OF ELECTRICITY: SHILLONG**

AWARENESS ON ELECTRICAL SAFETY

The overall growth and development of the country depend largely on the availability of electricity. Electricity has become an essential commodity in everyone's life be it in offices, schools, colleges, research institutes, industries or defence, etc. At present, there is a huge demand for electricity due to the increase in the number of buildings, industries, etc. Further, due to the increase in the population, there is also a steep rise in the number of constructions of houses and buildings in the State of Meghalaya; hence there is an increase in the number of electricity users. To cater to the requirements of electricity users, the number of Electric Transmission and Distribution lines has been on the rise in the State to provide electrical connectivity to its users. In the meantime, records of electrical accidents of human beings and animals have also been on the rise in the recent past especially during the past year which has reached a very alarming state.

The office of the Inspectorate of Electricity, Meghalaya administers the Electricity Act, Rules and Regulations made therein, desires to have zero electrical accidents of human lives and animals as well as losses of assets to electricity users in the State of Meghalaya. Its main mission is to make the State an electrical accident free from the use of electricity under the provisions of Section 53 of the Electricity Act 2003.

Firstly, we all know that "Electricity is a good servant; but a very bad master". Human beings and animals are good conductor of electricity; where the current flows into the body and damage the soft tissues, bones, and heart and create muscle contraction leading to injury or death. Electrical accidents can occur very easily, which is why basic electrical safety must be followed. Therefore, it is important to know the deadly effects of electrical accidents before we understand how to strictly adhere to the importance of following the guidelines of electrical safety. Electricity cannot be seen with our eyes; however it does not mean that it is not present. Electricity can be felt only when it is touched, gets contacted or comes close to its flashover point, hence it should never be touched or go near its flashover point.

The main objective of the Government is to create awareness amongst the general public on electrical hazards and ways to prevent them to minimise electrical accidents. To achieve the safety goals, the cooperation of the citizens in adhering to safety guidelines is very important to enable the State of Meghalaya an electrical accident-free State. Knowledge of basic Electrical Safety is very important in everyday life. Electrocutions may occur when victims are not aware of basic electrical safety, or even to those who possess the basic knowledge of electrical safety, however ignorant and carelessness may expose people to electrical dangers and may cause electrical accidents to the worker himself and co-workers.

It is important to know the effects of electrical accidents. These are;

1. Fatal
2. Non-fatal.

Such electrical accidents on human beings and animals are further classified as follows depending on the severity of the accident and level of voltages:

1. Electrocutation (fatal); death in a fraction of a second depending on the level of voltage.
2. Electric shock; (non-fatal; may cause paralysis, impaired hearing, loss of sight, loss of memory, insomnia etc.)



3. Electric burn injuries (loss of a hand, loss of a leg, loss of a finger, loss of both hands and legs, deformed body/face, slow death etc.)
4. Falls after electric shock (fatal or non-fatal).

Many electrical accidents occur either due to direct contact with the electric conductor or indirect contact due to electric induction i.e., the person or animal gets an electric shock when they are near the flashover point of the electric line or conductor and the intensity of induction depends on the level of voltage, the higher the voltage the farther the flashover point and higher induction. In this connection, it is therefore mandatory to create awareness among the general public for electrical safety and to strictly follow/adhere to the DOs and DONTs as listed below:

DONT's:-

- Do not construct any house on the electric pole or structure since defective insulators will cause leakage of current, which will flow into the house and may cause electrical injuries or death to those residing in the house.
- No building should be constructed under an existing overhead electric line.
- Do not construct any buildings, structures, or flood banks and raise the road level either temporarily or permanently under or near the electric line. If necessary, it should be referred to the Electrical Inspector whose decision thereof will be final under the Act to ensure safety.
- Do not use substandard materials such as PVC, switches, MCBs etc., for house wiring since these may have low insulation resistance and will result in electric sparks and cause fire. Use only electrical materials that have ISI marks or genuine electrical materials. Cheap materials without any brand names are hazardous and may cause electric short circuits and fires.
- Do not carry fishing rod near or under the electric line; fishing rods made of graphite / carbonated materials / wet fishing rods are good conductors of electricity, hence if it comes in contact with the electric lines, the current will flow to the person carrying the fishing rod that is fatal.
- Do not add electrical gadgets more than the capacity of the PVC at home, since excessive loading will damage the insulation of the wire / PVC that will result in electric spark and fire.
- Do not touch or climb the electric pole, transformer or electrical machines if you are not authorised to do so.
- Do not touch electrical equipment when any part of your body is wet. While handling electrical equipment, make sure your hands are dry. Wearing dry rubber shoes and rubber gloves is mandatory while working on electrical apparatus.
- Do not fly a kite with a hard cord / thread / string blended with manja as it may cut the electric conductor (aluminium) or may pull down the conductor together resulting in flashover and overvoltage which will damage the electrical gadgets in somebody's house that draw electricity from the said line.
- Do not install plug points at a low height from the floor which is reachable to children. The power plug should be fully protected or covered with insulation materials to prevent the children from touching the live wire/plug point.
- Do not assemble/gather /arrange meetings/processions under the overhead electric lines.
- Do not tie rope, or wire on the electric pole for drying of clothes.
- Do not tie pets, cattle or animals to the electric pole.
- Do not carry iron rods, GI pipes or similar materials, transport, store or bring within the flash over a distance of bare live conductors or electric lines.



- Do not replace the bulb/switch or handle a fan or electrical wiring without switching off the power supply.
- Do not connect/work any electricity line/wire on your own from the electric pole except by the licensed electrical workmen. Electrical works should be carried out only by a person holding a valid electrical contractor license issued by the State Government.
- Do not replace the fuse wire at home on your own without knowing the cause of the fault. Consult a designated electrician for rectification before the replacement of the fuse wire.
- Do not try to fix electrical equipment with objects like pencils rulers or knives because the metal in them can serve as a good conductor of electricity.
- Do not switch on any electrical gadgets at home and leave them unattended.
- Do not store any inflammable material such as LPG, or petrol under the overhead electric line.
- Do not spray water on the electric machines, electric lines, transformer and any other electrical equipment.
- Do not carry out any unauthorised electricity connection by unlawful means or by hooking as it may result in an electrical accident or death due to the wrong connection causing overvoltage. Hooking of electric lines may result in an electrical accident or cause the conductor to sag to the ground and may get snapped at the point of contact due to overheating.
- Do not remove danger notice plates or other signs or interfere with safety barriers or go beyond them.
- Do not tamper with the energy meter or meter boards unless you are authorized to do so since it may lead to an electrical accident.
- Do not go near any High Voltage or Extra High Voltage line or apparatus as it may cause fatalities due to electric shock or get electrocuted due to induction even without touching.
- Do not cut trees or bamboo near the High Tension or Extra High-Tension line since it may result in electric shock and cause fatality to the nearby person due to induction even if the tree or bamboo falls within the flashover distance of the electric line.
- No material or earth work or agricultural produce should be dumped or stored under the overhead electric lines; no trees should be grown below or in the vicinity of bare overhead electric lines.
- No blasting for any purpose should be done within 300 meters from the boundary of a substation or the supply lines or tower structure without any written permission from the owner of such power stations, substations, electric lines or towers.
- No cutting of soil should be done within 10 meters from the tower structure of 132000 volts and above and 5 meters from the pole structure of 11000 volts up to 33000 volts without any written permission of the owner of the tower structure or electric pole.
- Do not burn fire above the underground electric cables.
- Firing of any material below the electric lines is prohibited as it may cause the overhead line to get heated and snap.
- Do not allow visitors and unauthorized persons to enter the high voltage zone or go near the danger zone of high voltage apparatus.
- Do not touch or go near any electric conductor that fell on the ground. Immediately inform the technical person of the electricity department/ MeECL if found so. The person should stay at least 18 meters away from the snapped conductor.
- No service line can be tapped from the span of an overhead line except at a point of support to protect the conductor from sagging and low ground clearance and a possibility of contact with another conductor that will cause high voltage.

- No person should construct a brick kiln or other polluting units near the installation or transmission lines of 220000 volts and above within a distance of 500 meters.
- No person should carry any work on the electric supply line or apparatus unless he is designated in that field and should take the mandatory safety precautions duly provided to him by the Electricity Department / MeECL.
- For the safety of the public, no electricity connection should be provided/given to such places of large gatherings such as concerts, trade fairs, street lighting, public meetings, public gatherings, pandals, functions etc. without prior approval in writing from the Electrical Inspector.
- Do not touch any person who comes in contact with the electric line or suffers from electric shock. Immediately inform the technical person from the electricity department / MeECL to switch off the power supply in that area. After ensuring that the electricity is switched off, the person who comes in contact with the electricity line can be removed. The same should be brought to the notice of the Electrical Inspector.
- Lightning is a high voltage electricity of millions of volts; Do not stand in open spaces or outdoors during lightning. People should stay under the cover or indoors to prevent from lightning strikes.

DOs:

- The consumer should take reasonable precautions on their premises to prevent mechanical damage to the earthed terminal for safety from current leakages.
- Old wiring should be periodically tested by the appropriate electrical supervisor and replaced if necessary to prevent short circuits and fire.
- Multi-storeyed buildings of five storeys and above should take electrical safety clearance from the Electrical Inspector before obtaining an electricity connection.
- The consumer should not interfere with the electrical equipment on his premises belonging to the supplier/MeECL as this may hamper safety. The consumer should also ensure that the installation under their premises or their control is maintained in a safe condition.
- All wiring circuits should be provided with proper fuse rating or rated MCB to automatically isolate the faulty section of the circuit in their homes to prevent from fire.
- All substations should be properly fenced with the provision of barbed wire to prevent easy accessibility by any unauthorised persons or animals.
- Guarding or guard wires should be provided where lines of voltage not exceeding 33000 volts across a road or street.
- Where an overhead line crosses or is in close proximity to another overhead line, a guarding arrangement should be provided to guard against the possibility of their coming in contact with each other.
- Owners of Diesel Generating Set/Captive Plant (9.5KVA and above) should obtain mandatory clearance in writing from the Electrical Inspector, Inspectorate of Electricity before commissioning the sets.
- Provide GI barbed wire or anti-climbing device around the electric pole up to a height of 9 (nine) feet from the ground to prevent the children from climbing the pole, especially in rural areas.
- No electric conductor should have more than one joint in a single span.
- Conductors on the same support with different voltages should be guarded to prevent them from coming in contact with each other in the event of snapping.




- Place a rubber insulation mat on the floor in front of the switching panel board at the control room or switching station to prevent from electric shock.
- Every designated person who is working on an electric supply line or apparatus or both should use safety devices and follow SOP for protection from mechanical or electrical injury such as hand gloves, helmet, ladder, and safety belt.
- All water pipe connections should not touch the electric pole since any leakages of current from the insulator will directly pass to the water pipes and then into the house having a water pipe connection. Water pipes should be laid as far as possible from the electric pole.
- For users of inverter/UPS or DG Set etc., an interlock switch or changeover switch should be provided to ensure that there is no back/reverse flow of current from the house/building to the electric lines to prevent the electric workers from getting electric shock and suffer injuries or death. MeECL may discontinue the supply of electricity to such building if such leakages are found and the same may be reported to the electrical Inspector.
- Periodically check the electrical wiring by a licensed electrical supervisor for its safety. For determining the safety of electrical wiring, earthing etc.; electricity users may write to the office of the Inspectorate of Electricity on plain paper/letterhead for testing of electrical safety in their buildings/homes; a minimal fee will be charged for the same.
- Periodical inspection of electrical lines, substations, and electrical machines should be done to ensure that they are in safe operating condition as laid down in the regulations.
- High-rise buildings or buildings on hilltops should install lightning conductors at the highest point of the building to divert the lightning surge to the earth. Proper earthing should be made for better diversion of surge to the earth.
- The owner of any X-ray installation or similar high-frequency apparatus should seek permission and approval from the Electrical Inspector before bringing them into use. Such X-ray and high-frequency apparatus should be sought for periodical inspection and approval thereof by the Electrical Inspector.
- The owner of the electric lift and escalator should get it tested and the approval thereof from the Electrical Inspector before putting them into use.
- The owner or user of any luminous sign or similar installation of voltage exceeding 650 volts and not exceeding 33000 volts should get it approved by the Electrical Inspector before putting them into use.
- Avoid using or switching on of electrical gadgets such as TVs, refrigerators, ACs, geysers etc., during lightning or thunderstorms to prevent them from getting damaged due to the instantaneous rise of high voltage when the lightning strikes the electric lines.
- At home, if a person comes into contact with an energized electrical conductor, do not touch the equipment, its cords, or the person affected because the charge may pass to you. Instead, shut down the main power source such as the circuit breaker / MCB / cut-out and then unplug the equipment using a leather belt, then separate the person who suffers electric shock by wearing thick rubber boots that are dry and use dry wood/stick or rubber gloves. Immediately inform the technical person of MeECL of that area and also to the Electrical inspector. After removing if the person is still unconscious call for an ambulance immediately for treatment. Only those with the necessary knowledge and skill should carry out first aid or provide resuscitation.
- When any person or animal comes in contact with the electric line or suffers from electric shock from high voltage (440 Volt and above), do not go near or touch that person. Immediately call the technical person from the electricity department / MeECL to switch off the power

supply of that area and call the emergency medical service such as ambulance. A person with knowledge of electricity may use an insulation stick or dry bamboo stick to remove the electric conductor from the person who suffers electrical shock after due protection is taken before helping others. The same should be brought to the notice of the Electrical Inspector.

➤ **FOLLOW ELECTRICITY SAFETY RULES.....STAY SAFE.**

Issued in the Public Interest by the Senior Electrical Inspector, Inspectorate of Electricity, Lachumiere, Meghalaya, Shillong.


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