



# **SNS COLLEGE OF TECHNOLOGY**

**(An Autonomous Institution)**



## **Preliminary Preparations**





# TESTING OF ELECTRICAL INSTALLATION



- Before any testing of low voltage electrical installations (and equipment) is carried out, a detailed physical inspection must be made to ensure that everything is to a relevant National standard, erected/installed in compliance with the IEE Regulations and not damaged in such a way that it could cause danger.
- In order to comply with these requirements, the Regulations give a checklist of items that, where relevant, should be inspected.
- However, before such an inspection, and test for that matter, is carried out, certain information must be available to the verifier.



# TESTING OF ELECTRICAL INSTALLATIONS



Let us look then at the general content of the checklist:

## Check #1 – Connection of conductors

Are terminations electrically and mechanically sound? Is insulation and sheathing removed only to a minimum to allow satisfactory termination?

## Check #2 – Identification of conductors

Are conductors correctly identified in accordance with the regulations?

Check #3 – Are cables installed such that account is taken of external influences, such as mechanical damage, corrosion and heat?

## Check #4 – Conductor selection

Are conductors selected for current carrying capacity and voltage drop in accordance with the design?

## Check #5 – Connection of single pole devices

Are single pole protective and switching devices connected in the line conductor only?

Check #6 – Are all accessories and items of equipment correctly connected?

## Check #7 – Thermal effects

Are fire barriers present where required and protection against thermal effects provided?

## Check #8 – Protection against shock

What methods have been used to provide protection against [electric shock](#)?



# TESTING OF ELECTRICAL INSTALLATIONS



Are wiring systems installed so that they can have no harmful effect on non-electrical systems or so that systems of different currents or voltages are segregated where necessary?

## Check #10 – Isolation and switching

Are the appropriate devices for isolation and switching correctly located and installed?

## Check #11 – Undervoltage

Where undervoltage may give rise for concern, are there protective devices present?

## Check #12 – Protective devices

Are protective and monitoring device

Are all protective devices, switches (where necessary) and terminals correctly labelled?

## Check #14 – External influences

Have all items of equipment and protective measures been selected in accordance with the appropriate external influences?

## Check #15 – Access

Are all means of access to switchgear and equipment adequate?

Are all protective devices correctly chosen and set to ensure automatic disconnection and/or overcurrent?



# TESTING OF ELECTRICAL INSTALLATIONS



## Check #16 – Notices and Sign

Are danger notices and warning signs present?

## Check #17 – single line diagram / Schemes

Are diagrams, instructions and similar information relating to the installation available?

## Check #18 – Erection methods

Have all wiring systems, accessories and equipment been selected and installed in accordance with the requirements of the Regulations? Are fixings for equipment adequate for the environment?



# CAUSES OF ELECTRIC SHOCK



Causes of being shocked by electricity can include:

- Contact with a powerline or electrical arc flash
- Accidental contact with exposed electrical sources
- Faulty electrical wiring, installations and repairs
- Contact with metal, growing vegetation, or other conductive material exposed to electrical current, such as a metal ladder that touches a powerline or other exposed wire
- Accidental contact with a downed power line, or with the earth near a downed powerline
- Faulty swimming pool pumps or swimming pool lights, unbonded surfaces near a pool, or pool deck outlets lacking GFIC safety devices
- Shock from faulty or unprotected electrical products, such as household appliances (e.g., hair dryers and toasters), power tools, medical devices, outlets, electrical plugs and extension cords
- Three-prong-to-two-prong grounded plug adapters
- Lightning from thunderstorms
- Construction machinery, such as cranes, scaffolds, lifts, dump trucks, ladders, and long conductive handled tools making contact with power lines
- Contact with electrical machinery
- Contact with electricity-based weapons such as tasers
- Entering switch cabinets, step-down transformers, or electrical cabinets without authorizations
- Failure to enforce Lock Out/Tag Out (LOTO) safety procedures



# common electric shock symptoms



The most common electric shock symptoms and injuries resulting from an accident with electricity include:

- Amputation
- Severe burns (external and internal)
- Cardiac arrest and/or arrhythmia and/or fibrillation of the heart
- Heart muscle damage, Brain injuries, Nerve damage
- Memory loss,Hearing loss,Seizures
- Respiratory failure,
- Spine injury (injuries to the neck and back that occur when the electrical charge physically and forcefully throws a victim)
- Deformity at point of contact
- Cataracts
- Loss of kidney function
- Secondary injuries caused by post-shock falls
- Numbness or [tingling](#)
- Headaches,Loss of consciousness,Muscle pain
- Compartment syndrome (which occurs when muscle damage causes a person's limbs to swell)
- Shortness of breath/Chest pain
- Paralysis,Vision, speech and hearing problems
- Confusion,Muscle, tendon, and even disc injuries caused by involuntary contractions when the "let go" threshold is exceeded



# THANK YOU