**Introduction.**

Electrical hazards are present in most workplaces, from services within buildings, to electrical tools and equipment used, underground services, and overhead services.

**Importance of topic.**

Accidents involving electricity are often fatal. Not only can electricity kill you directly but electrical failure can also cause fires, putting everyone within a building or site at risk.

**Regulations and requirements.**

The Electricity at Work Regulations is the main law covering electricity but other relevant regulations include Supply of Machinery (Safety) Regulations, Electrical Equipment (Safety) Regulations and the Management of Health and Safety at Work Regulations.

**Good practice.**

- Understanding how electrical equipment is designed to be safe, helps us to spot when things are wrong and therefore dangerous.
- All metal parts designed to carry current (conductors) need to be properly insulated. If the insulation is vulnerable it has to be additionally protected – sheathing, conduit, trunking, armoured cable etc may be used.
- If you can see defective insulation or sheathing, the system is not as safe as it should be and should be isolated and immediate steps taken to get it repaired by a competent person. For example, a flex pulling out of plug or a cable frayed of split showing the colours inside. NOTE: Sometimes conductors are made safe by ‘placing out of reach’. This is OK until unusual circumstances (perhaps maintenance or decorating work) make them not ‘out of reach’ any more. Take special care in such cases.
- Earthing all metal parts not intended to carry current will prevent them becoming live in a fault situation. Earth wires and connectors are just as important as the circuit wires and any damage or looseness must be repaired urgently by a competent person.
- Earthing works in conjunction with the fuse or circuit breaker to protect the circuit in the event of excessive current. If a wrong size fuse is fitted, or a circuit breaker tampered with, the protection may not be adequate and danger could arise.
- To protect people, either the voltage has to be reduced to a safe level (110v should be used on sites) by a transformer, or if using 240v the fault current should be limited by a Residual Current Device (RCD). An RCD limits the fault current to only 30mA and trips in less than half a second. NOTE: These devices do not prevent electric shock, only that the shock is unlikely to be fatal. In damp or sweaty conditions the shock could still be severe so do not be lulled into a false sense of security.

**Questions.**

Question 1 – What are the main hazards of working with electricity?

Question 2 – What regulations cover working with electricity?

**Summary.**

Use 110v equipment on construction sites. Check for signs of damage to equipments and cables, if in doubt have the circuit/equipment checked by an electrician before starting work.