



## Risk Element

- Overheating of cables and electrical equipment due to overloading of conductors;
- Leakage currents due to poor or inadequate insulation;
- Exposure to the danger of electrical shock;
- Danger to third parties.

### Precautions to Eliminate/reduce Risk:

When calculating cable sizing you need to consider:

- Voltage;
- Number of phases;
- Fault conditions;
- Method of installation;
- Length of run, this is important to establish voltage drop which is generally 5% max and 3% for lighting;
- Use of I.E.E. Regulating cable tables and Manufacturers specification;
- Verification of choice by qualified third party if deemed necessary.

### Safe Working Method

**NOTE: Reference should be made to the I.E.E. Regulations (BS7671) and the Electricity at Work Regulation 1989 before implementing these procedures.**

- Only suitably qualified people should be sizing cables;
- All calculations should be done through Amtech cable software;
- Check the current carrying capacity of a cable for the continuous use, under the particular installation conditions;
- Check the relevant I.E.E. cable tables for the type of cable and installation method concerned, for a single circuit in an ambient temperature of 30 °C;
- Check the design current of the circuit, i.e. the total current intended to be carried under normal use;
- Check the nominal current or current setting of the device protecting the circuit against over current, i.e. overload, MCB, etc.;
- Check the operating current, i.e. the fusing current or tripping current for the conventional operating time of the device protecting the circuit against overload, i.e. fuse, MCB, etc. (Use manufacturers tables to establish data values);
- Apply the following correction factors where the installation conditions differ from those for which the values of current carrying capacity are listed in I.E.E. tables:
  - Ambient Temperature;
  - Grouping (Number of cables running together);
  - Thermal Insulation (Of cable);
  - Operating temperature of conductors.
- Ensure the current carrying capacity of a cable is not less than the design current of the circuit in all circumstances;
- Ensure the rated current of the current setting device which protects the circuit against over current is not less than the design current of the circuit;
- Ensure that Regulation 5 of the Electricity at Work Act 1989 is complied with;
- Ensure where cables are being replaced in an existing installation or control panel, that under no circumstances are they of a lesser current carrying capacity than those being replaced.