

## **ELECTRICAL FAULT PROTECTION**

The protective devices deployed in most residential premises may include HRC (High Rupturing Capacity) fuse, rewirable fuse, MCBs (Miniature Circuit Breakers) for protection against overload and short circuit, or RCCBs (Residual Current Breakers) for earth leakage and RCBOs (Residual Current Circuit Breaker with Over current protection) combining the features of both MCBs and RCCBs. RCBO as a single unit can thus provide all the three types of protection, namely overloaded, short circuit and earth leakage. These may find application in domestic situation, where level of safety needs to be built in as women and children are exposed to electrical hazards here.

Rewirable fuses are still used in many installations because of their low replacement cost, easy availability of fuse wire etc. However, when these pretty advantages are weighted against the inherent hazards that come with these rewirable fuses, the only explanation for its use could be '*false sense of economy*'. The use of ordinary thick copper wires in place of standard fuse wire is a common practice. This unsafe practice not only dilutes protection but also could lead to overloading of circuits, heat development and eventual fuse wire accidents. Hence there is a strong case to discourage the practice of using non-standard fuse wire of approximate rating and replace rewirable fuses with approximate type of MCBs or with fuses of correct rating.

Indian Standards restrict the use of rewirable fuses to the circuits with short circuit level of 4KA and recommended HRC fuses for higher level. In all installations where rewirable fuses are in use, it is essential to keep a stock of ISI marked standard fuse wires of required gauge. However, as a guideline, the current rating of a fuse shall not exceed the current rating of the smallest cable in the circuit protected by the fuse.