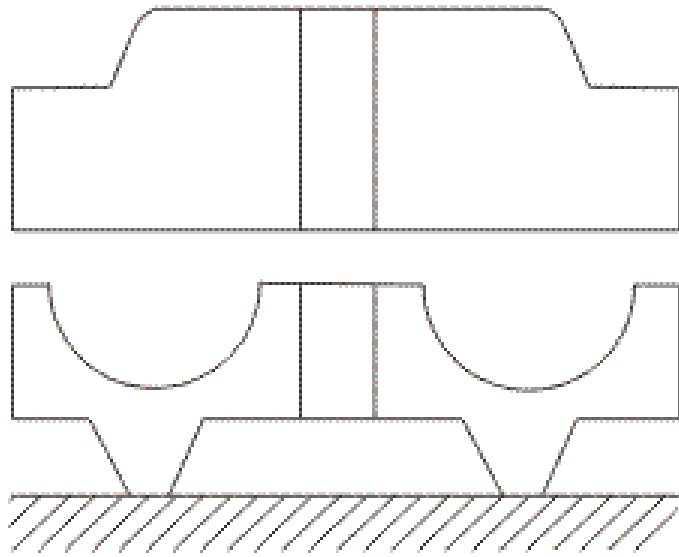


1.4 Classification of Electrical Installation (wiring)

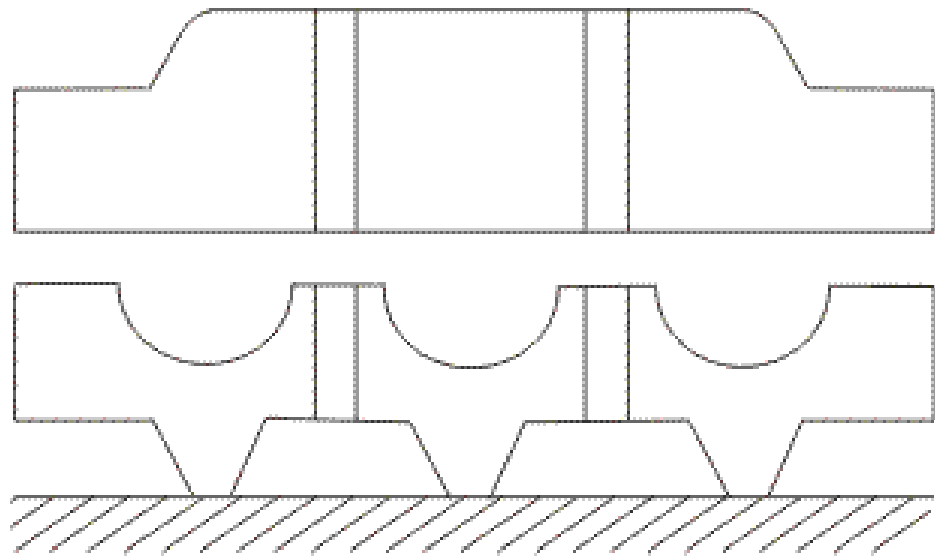
a) Cleated wiring



The cleated wiring system is almost absolute(no more uses) nowadays.



Cleat with two grooves



Cleat with three grooves



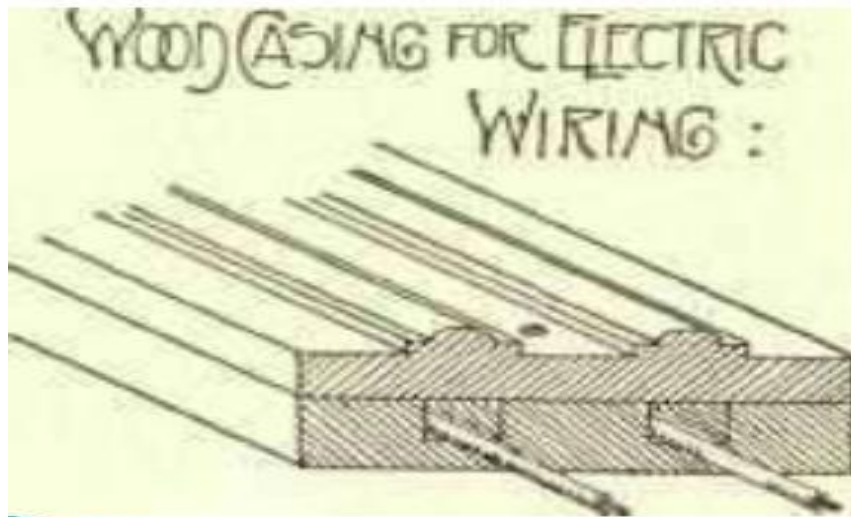


b) Wood Casing and Capping

In this system of wiring PVC insulated wire are run in grooves of varnished casing manufactured from seasoned teak or other hard wood.

The casing is covered with varnished casing fixed with iron nails. They should be laid on dry walls and plastered ceiling only.

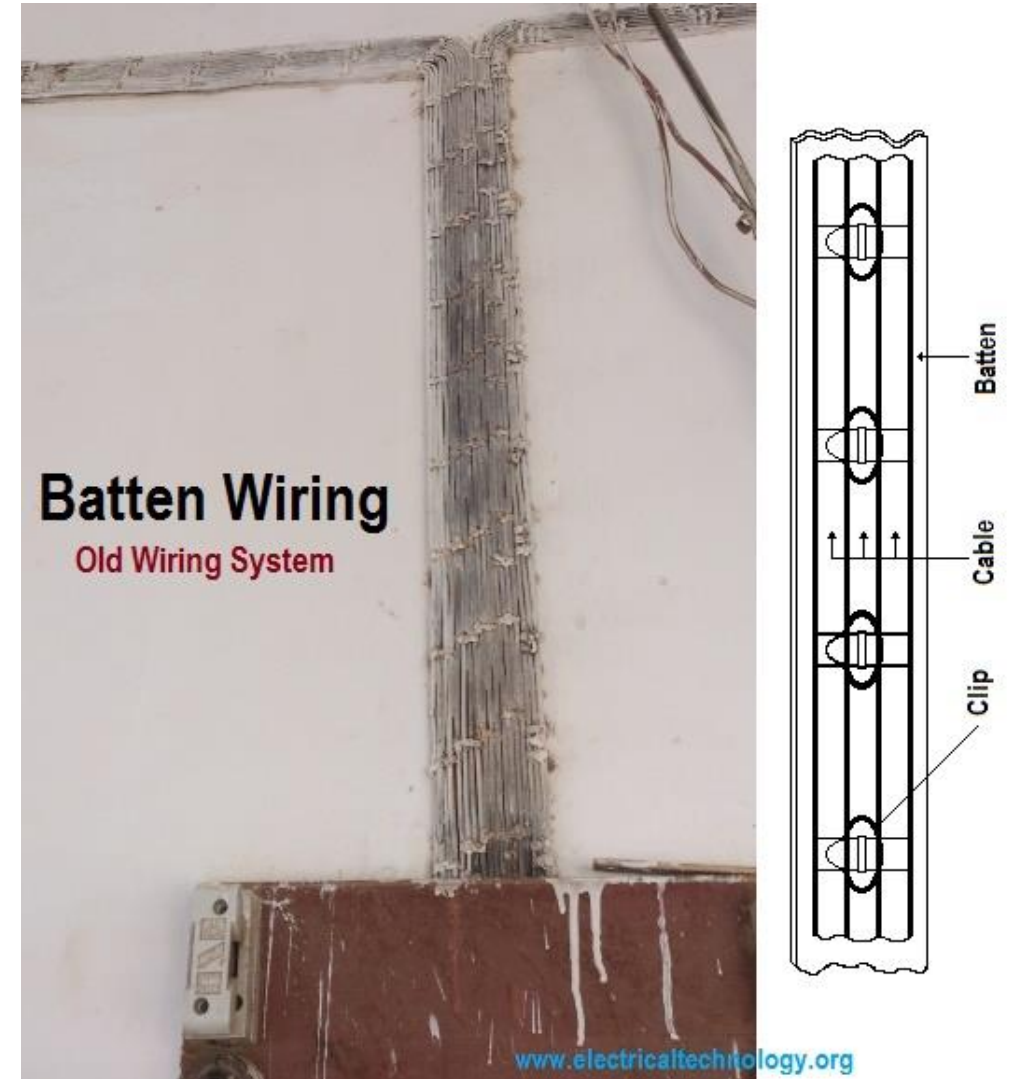
Wooden Casing and Capping Wiring





c) Wood Batten wiring

- This method is widely used for indoor installation. Here, PVC insulated wires are run on well varnished wooden batten strips, the width of which is such as to suit total width of cables laid on the batten. Tinned brass link clips are used to fasten the wires on batten.
- Batten should be fixed on walls or ceiling by flat wood screws to wood plugs or other plugs at an interval not exceeding 75cm. The link clips should be spaced at an interval of 10cm in case of horizontal run and 15cm in case of vertical runs.



d) Conduit wiring:-

This consists of PVC wires taken through rigid steel conduit pipes or PVC conduit pipes and run over the surface of walls and ceiling. The conduit should be laid completely before cables are drawn in. Surface wiring is mainly used for factory lighting and motor wiring. It is expensive system of wiring and requires more time for installation. It provides protection against mechanical damage and against fire due to short circuits. This system is water proof and replacement of defective wiring is easy.

Two types of conduits are used for this type of wiring

- Non-metallic conduit
- Metallic conduit made of mild steel with anti-corrosive paint. The conduit must be earthed.

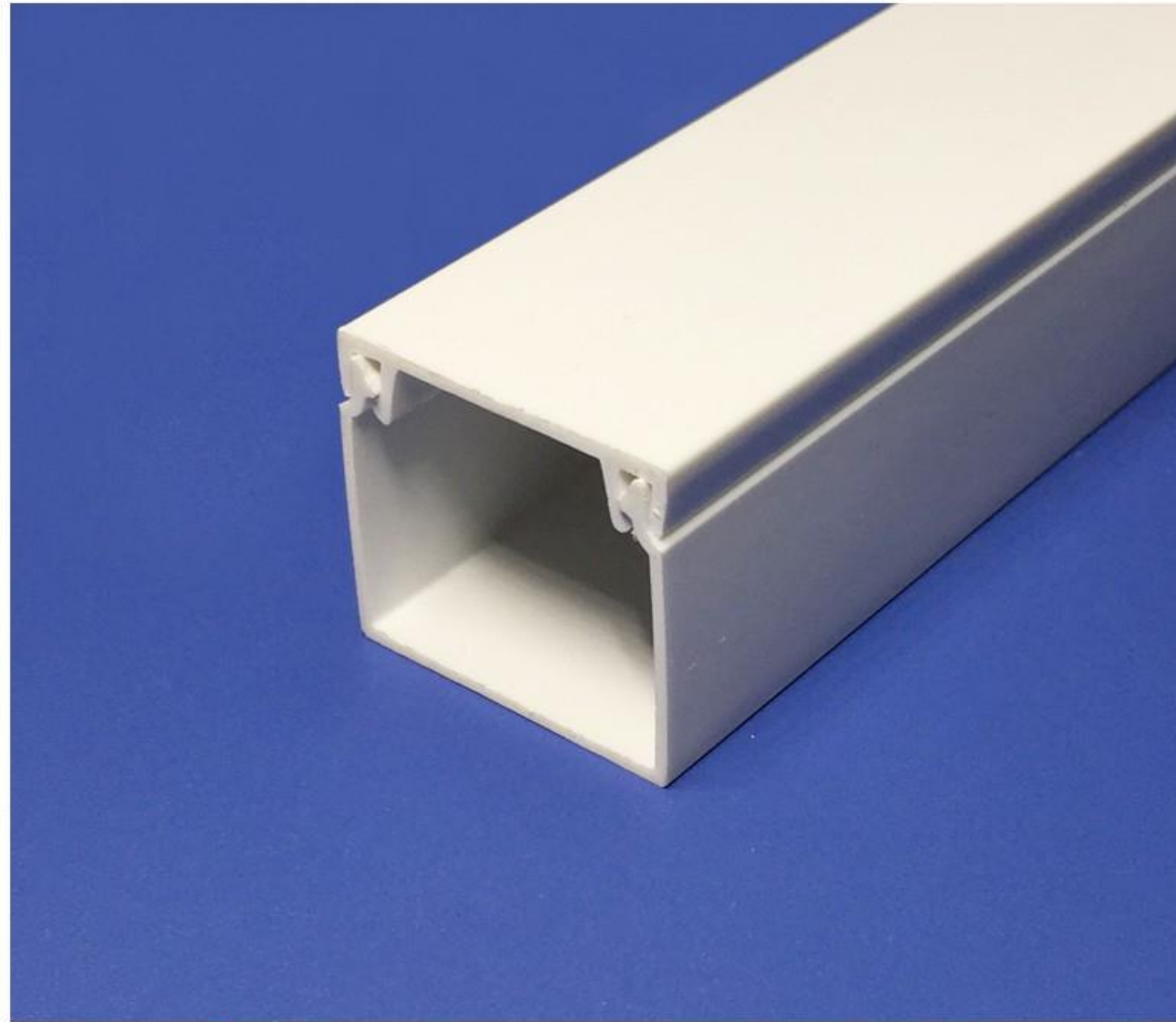




Non-Metallic Conduit



Metallic Conduit



Shingfong PVC Trunking
www.shingfong.com



PVC Casing and Capping

e) Concealed wiring:-

In this method of wiring, the PVC conduits are laid prior to the RCC casting and every part of conduits are concealed inside the slab and wall. After concealing the conduit, wires are drawn into the conduits with the help of pull wire.

Advantages

- Better mechanical protection as compared to surface wiring
- Cheaper than surface wiring
- Better outlook of building
- Longer life than surface wiring

Disadvantages

- Complete planning and design is necessary prior to civil construction
- No flexibility for future alteration and expansion.

Concealed wiring is nowadays widely used in modern building to improve appearance.



f) PVC or Metal trunking System:-

It is a type of surface wiring where PVC or metal box channel(trunking) is used to carry numbers of wires and cables. The trunking is fixed on wall and ceiling with the help of metal screws at an interval of 30cm.



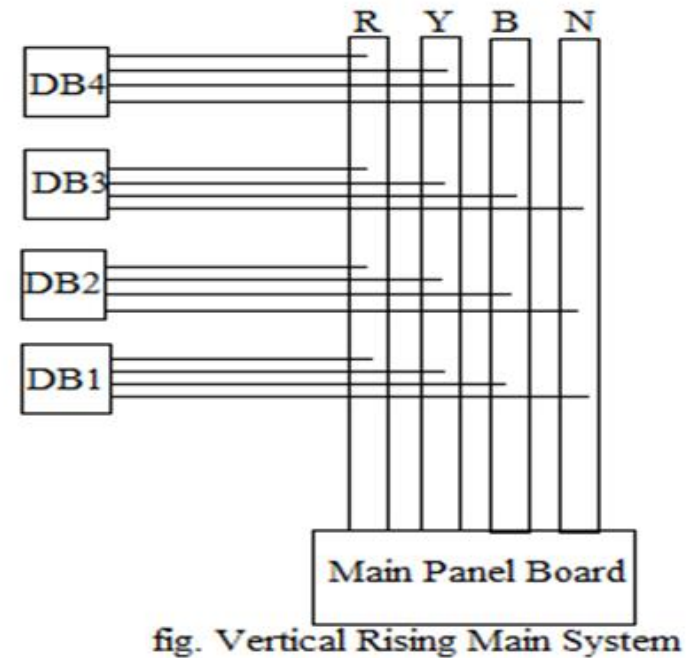
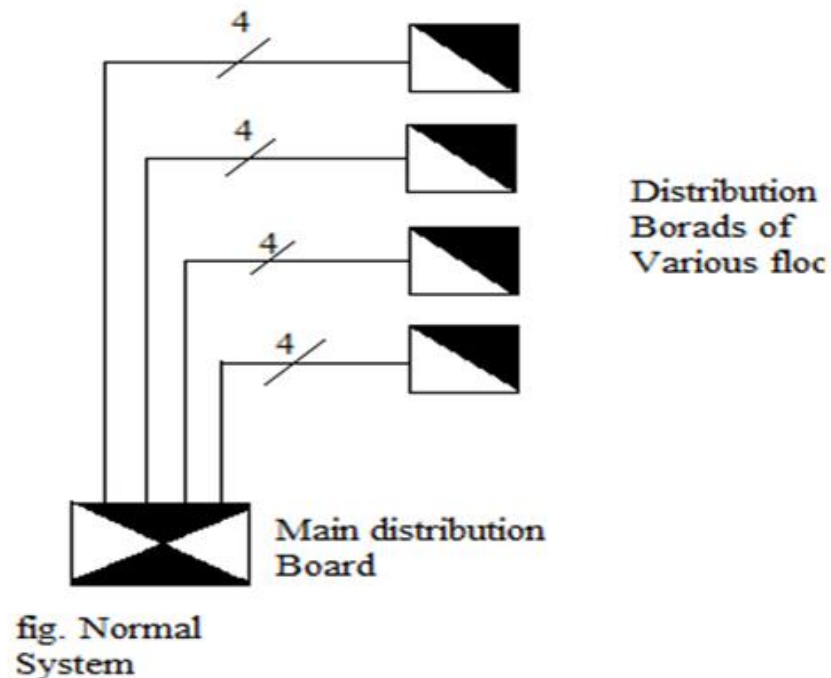
g) Cable tray system:-

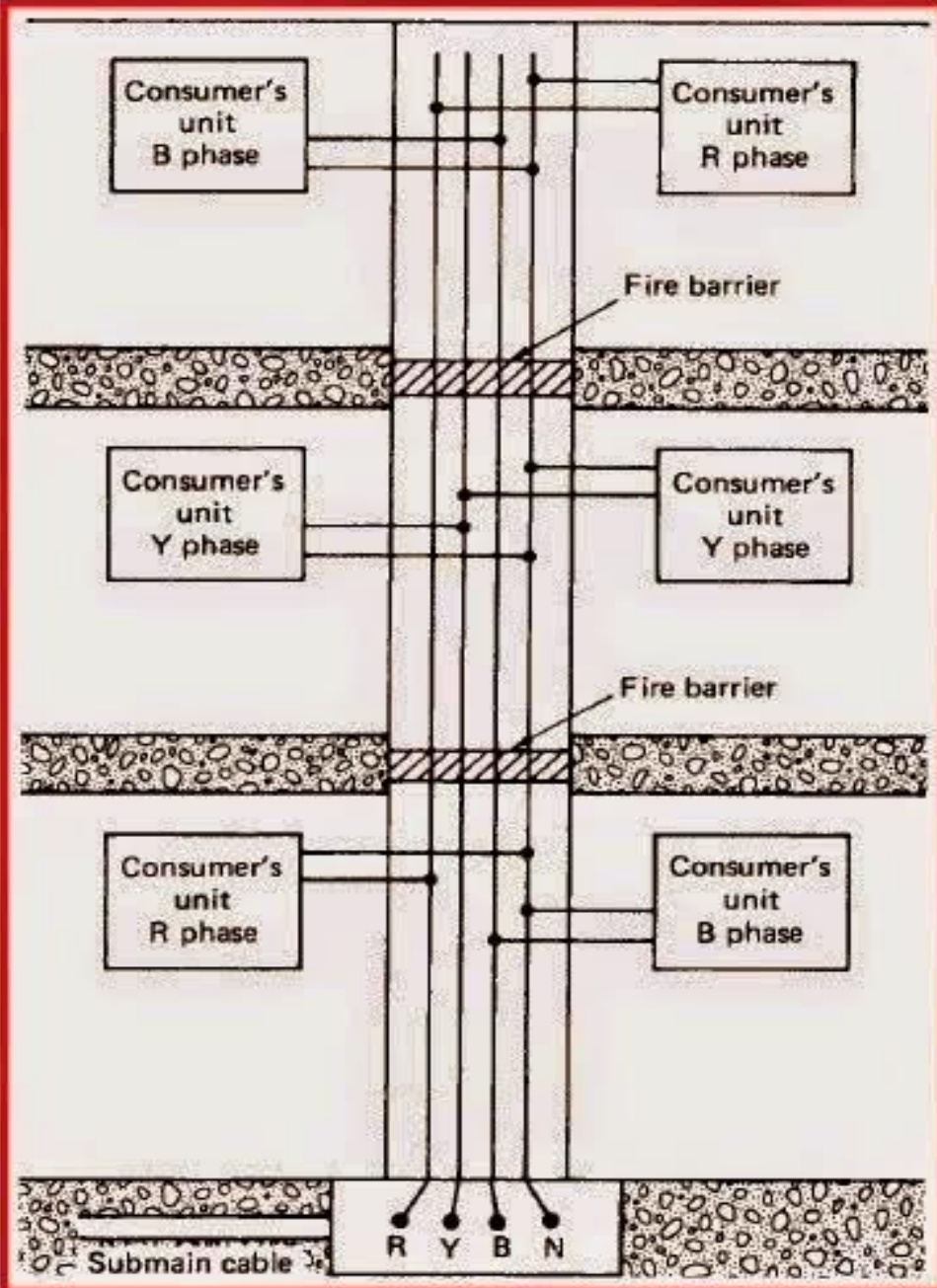
A unit or assembly of units or sections and associated fitting made of metals or other non-combustible materials forming a continuous rigid structures, is used to support cables. They are popular in commercial and industrial electrical systems because of low installed cost, flexibility, accessibility for repair, or addition of cables and space saving.



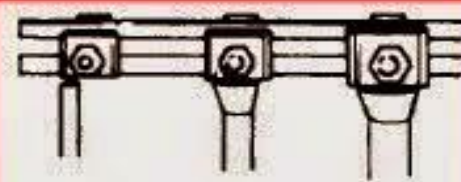
h) Vertical rising main system:-

It is not the complete wiring system but the part of the system replacing the cable from main panel to DB's of various floors. In normal system DB's at various floor are supplied from main control panel with individual sets of cable. The single vertical rising main system supply the power to all DB's from the main control panel.





An example of a busbar chamber



Consumer's supply cables are connected by clamps to the busbars

- The vertical rising main system consist of copper or aluminium bars laid vertically in a metal enclosure or electrical duct. The bus bars insulated from metal enclosure and enclosure is earthed.
- Power is tapped at each floor through smaller bus bars or insulated cables. A suitable switch fuse unit is provided at each tap off point. This system is most suitable for multi-storey building.

Advantages;

- Easy installation
- Long life
- Reliable operation
- Easy maintainance

Note: Current Density

- Cu:1.9A/sq.mm(Ventilated)
- Cu:1.5A/sq.mm(Non Ventilated)
- Al: 1.2A/sq.mm