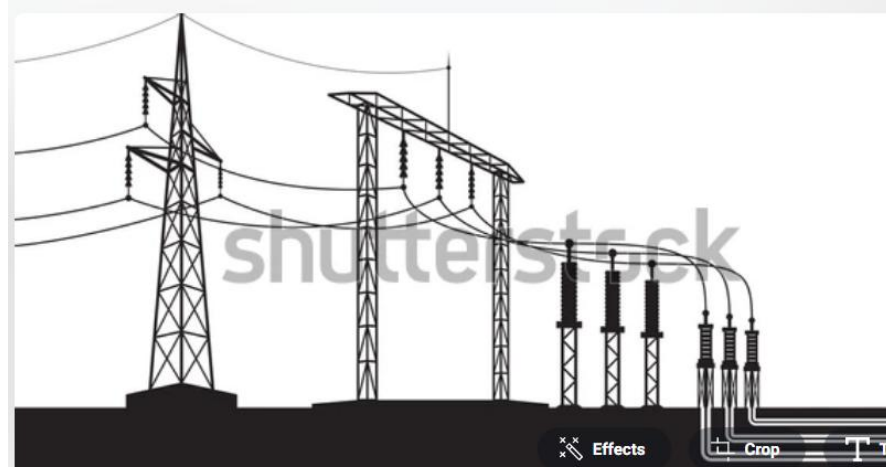


2.1 ARCHITECTURE OF UNDERGROUND CABLING SYSTEM



In areas where space for cables is limited and crunched, especially the urban regions, underground laying of cables is an efficient method. Telecommunications or electric power can be transmitted through underground cables. Data is transmitted from one point to another using cable laid on the ground instead of the ones hanging from poles and towers in an underground cable system.

Benefits of underground cable laying:

Climate change has made extreme weather conditions more common. In order to have an uninterrupted power supply and telecommunication in place, it is important that our infrastructure is planned and equipped to survive the harsh weather conditions. The following benefits make underground cable systems the preferred choice:

- Longer lifespan – Underground cables have a much greater life expectancy than aerial cables.
- Reduction in maintenance costs – Less exposure to nature’s fury like falling tree branches, strong winds and rain lead to fewer maintenance requirements.
- Accident prevention- Aerial cables can collapse on buildings and cars and put anyone near them at the risk of electric shocks. In this regard, underground cable laying is safer.
- Continuous service – Protected from external factors, underground cables provide uninterrupted power or service.
- Zero obstruction – Underground cable systems are completely out of sight and

cause zero obstruction to properties.

- Minimum space requirement – Aerial cables require a lot of space for installing poles whereas underground cables require a much-limited band of land.

The Procedure & Installation of Underground Cable Laying

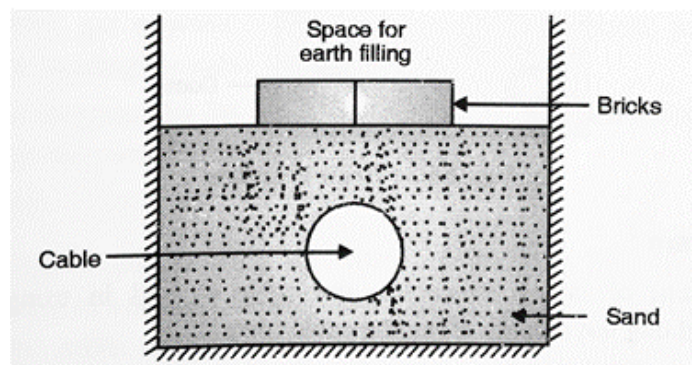
The effectiveness and efficiency of an underground cable system depend on proper cable laying, quality of cable joints and branch connections. There are three methods of underground cable laying.

The procedure followed in each method is as follows:

Direct laying

This method requires digging a 1.5m deep and 0.45m wide trench which is then covered with a layer of sand. The cables are laid in the trench and covered with a 10 cm thick layer of sand. To protect against mechanical injury the trench is then covered with bricks and other materials.

If more than one cable is required to be laid in a trench then a horizontal or vertical inter-axial spacing of 30 cm is provided to prevent mutual heating.



Advantages:

- The simplest and cheapest method of underground cable laying
- The heat generated gets dispersed in the ground.

Disadvantages:

- High maintenance cost
- Pointing out accurate locations of faults is difficult
- Cable network alterations are difficult.

