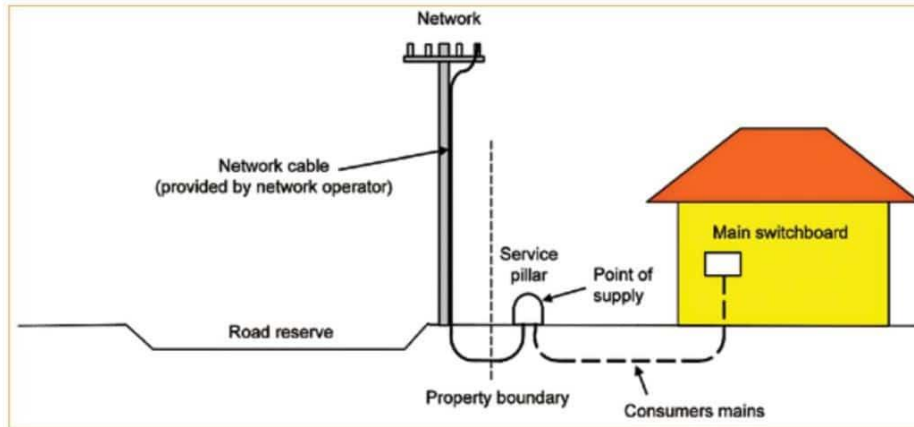


1.5 UNDERGROUND RESIDENTIAL DISTRIBUTION SYSTEMS



Underground Residential Distribution Systems (URD Systems) refer to electrical power distribution systems designed to deliver electricity to residential areas through underground cables instead of overhead power lines. URD systems have become increasingly popular in urban and suburban areas due to various advantages they offer over traditional overhead distribution systems.

Components of Underground Residential Distribution Systems:

Primary Feeders: These are high-voltage underground cables that carry electricity from the substations to the neighborhoods or communities. Primary feeders are typically installed in larger conduits to accommodate the higher voltage levels.

Secondary Feeders: Secondary feeders are lower-voltage cables that branch off from the primary feeders and distribute electricity to individual residential customers. They are usually installed in smaller conduits, and the voltage is stepped down to a safer level for residential use.

Pad-Mounted Transformers: These transformers are installed in various locations within the residential areas to further step down the voltage to a level suitable for individual households. Pad-mounted transformers are placed above ground and housed within protective enclosures.

Service Lateral Cables: These are the underground cables that connect individual homes to the secondary feeders or pad-mounted transformers. Service lateral cables deliver electricity from the distribution system to the individual meters on residential properties.

Advantages of Underground Residential Distribution Systems:

Aesthetics: One of the primary advantages of URD systems is that they are more aesthetically pleasing than overhead power lines. The absence of visible power lines contributes to a cleaner and less cluttered visual landscape in residential areas.

Reduced Outages: Underground cables are less susceptible to weather-related disturbances, such as high winds, ice, and falling branches, which are common causes of outages in overhead distribution systems.

Lower Line Losses: Underground cables have lower electrical losses compared to overhead lines, resulting in slightly more efficient power distribution.

