

This illustration shows basic equipment found on electric power distribution poles. Not all poles have all this equipment on them. They vary according to location and the service they provide.

>> **Primary wires** run on top. Each usually carries 7,200 volts of electricity from a substation.

>> A **crossarm** holds power lines, allowing required clearances between lines.

>> **Surge arrestors** protect the transformer from lightning strikes.

>> A **secondary service drop** carries 120/240-volts of electricity to the end user. It has two "hot" wires from the transformer, and a bare neutral wire connected to the ground wire on the pole.

>> **Telephone and cable TV lines** are typically the lowest wires.

>> A head-high "**birth-mark**" shows the size of the pole, as well as where and when it was made.

>> **40-foot poles** are sunk six feet into the ground.

>> **Insulators** (made of porcelain or a composite) prevent energized wires from contacting each other or the pole.

>> The **neutral wire** acts as a line back to the substation and is tied to ground, balancing the electricity on the system.

>> **Transformers** convert higher voltage electricity from primary wires to lower voltage for use by consumers.

>> **Guy wires** help stabilize poles. They also are connected to the pole's ground wire.

>> **Pole ground wire**—running the length of the pole—connects to the neutral wire to complete the circuit inside the transformer. It also directs electricity from lightning safely into the earth.

>> Co-ops are responsible for **keeping vegetation around poles trimmed** to avoid interference with the electric system.

