

# What is on a Utility Pole?

- 1. Crossarms** are available in treated wood, metal or composite material and is mounted to a utility pole to hold up the power lines and other electrical equipment.
- 2. Crossarm Braces** support the crossarm(s) which hold the wires on multi-phase poles.
- 3. 3-phase Primary Distribution Wires** usually carry 7,200 to 12,000 volts of electricity from the nearby substation to the transformer.
- 4. Primary Insulators** are made of materials that do not conduct electricity to isolate high voltage wires from the pole or crossarm and to prevent energized wires from coming in contact with each other or the utility pole.
- 5. Secondary Insulators** are devices used to isolate the wire from the wood.
- 6. Spiral Vibrator Dampers** reduce vibration in lines generated by wind.
- 7. Secondary Rack and Wires** are used to support and isolate low voltage wires from the pole.
- 8. Neutral (Conductor) Wire** is below the transformer and acts as a line back to the substation and balances out the amount of electricity or load on the system, acting as a ground wire.
- 9. Standoffs** keep the ground wire off primary and secondary wires and cables.
- 10. Fuse Cutout** is a combination of a fuse and a switch, used in primary overhead feeder lines and taps, to protect distribution transformers from current surges and overloads, acts as a fuse and opens when there is a problem with the line or section of it.
- 11. Line Tap** is a connection made to a distribution power line in parallel called a feeder. It will have some sort of fuse or breaker disconnect.
- 12. Capacitor banks** are commonly used to reduce the reactive power being supplied to the load due to the inductive nature of the power system. These banks most commonly will consist of a 3-phase design where each phase has 1 to 3 units (3 to 9 units per bank).

- 13. Lightning Arrestor** protects the pole and equipment from lightning strikes.
- 14. Single-phase Distribution Transformer (Step Down Transformer)** converts higher voltage electricity carried by primary wires to a lower voltage for use by customers.
- 15. Ground (Conductor) Wire to Transformer Case** connects to the neutral wire to complete the circuit inside the transformer and runs the entire length of the pole to direct any electricity on the pole safely into the earth.
- 16. Triplex Service Drop Cable (Secondary Power Lines)** carries secondary current, 120/240 volts, to the customer in two hot wires and one bare neutral wire connected to the ground wire on the pole.
- 17. Secondary (Conductor) Wire** carries the lower voltage electricity after it passes through the transformer to the customer's meter.
- 18. Telephone, Cable TV and Fiber Wires** are typically the lowest wires on the pole.
- 19. Guy wires** help stabilize the utility pole.
- 20. Compression Clamps** are used to bundle, clip, clamp, label, guide, and protect wires and cables.
- 21. Ground Rod** grounds the wire in the earth.
- 22. URD Riser** is the primary underground cable feeding the customer.
- 23. Pole Brandings and Tags** identify the pole manufacturer, length, classification or pole strength, wood species, preservative type, date of treatment and inspection dates.
- 24. Squirrel Guards** protect animals and prevent outages.

Did you learn anything new?

