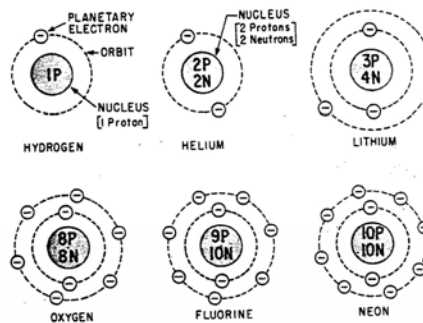


Electrical Safety Subpart S



Electrical Standards Fundamentals

- **Electricity is best described as the flow of electrons**
 - **Electrons tend to seek a balanced state**
 - **As electrons move from one orbit to another they release energy**



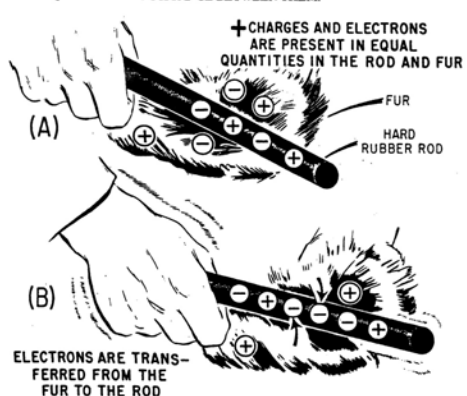
Electrical Standards
Fundamentals

- **Electrons seek a balanced state**
- **Electricity seeks the easiest path to common ground**
- **Lightning strikes**
 - **Electrons build up in clouds**
 - **Discharge to earth**
 - **(Or other way around, depending on the theory you subscribe to....)**



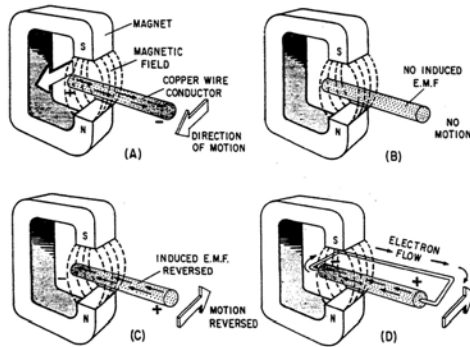
Electrical Standards
Fundamentals

- **Static Electricity can be made easily**
- **Usually low voltage**



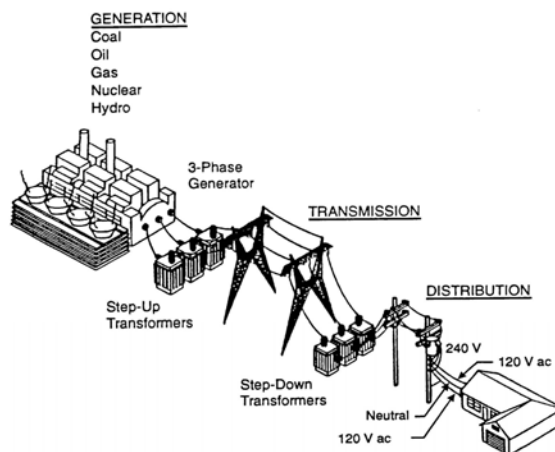
Electrical Standards
Fundamentals

- **Using magnetic fields allows us to create electricity simply by moving or rotating metals**



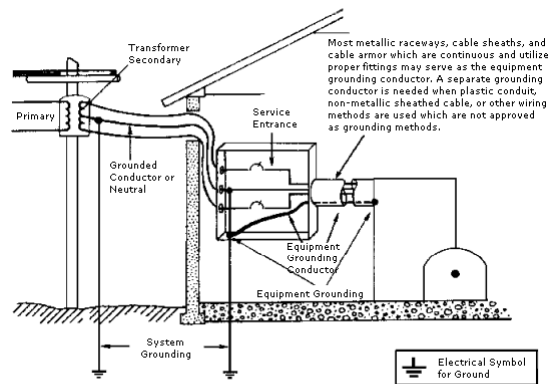
Electrical Standards
Fundamentals

- **Power is transmitted to our buildings through a power grid**



Electrical Standards Fundamentals

- **Grounding is built into delivery systems**



SYSTEM AND EQUIPMENT GROUNDING



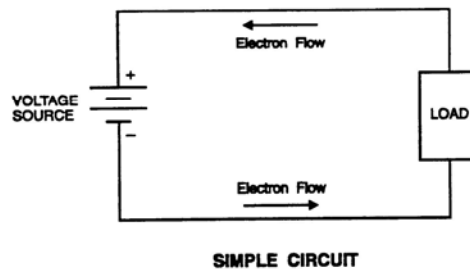
Electrical Standards Fundamentals

- **Any material that allows electrons to flow through it is called a conductor.**
 - Usually contains many free electrons
 - Metal and water a conductors
 - Gold, silver, aluminum and copper are good conductors
 - Earth, concrete, human body are fair conductors
 - Non-metallic material, wood rubber, glass are insulators



Electrical Standards
Fundamentals

- In order for electricity to “flow” it must have a complete path for the electrons to follow
- We call this a circuit



Electrical Standards
Fundamentals

- Along the circuit we can hook up devices in a series. Problem- if one breaks the circuit...

