AMERICAN RIVER COLLEGE

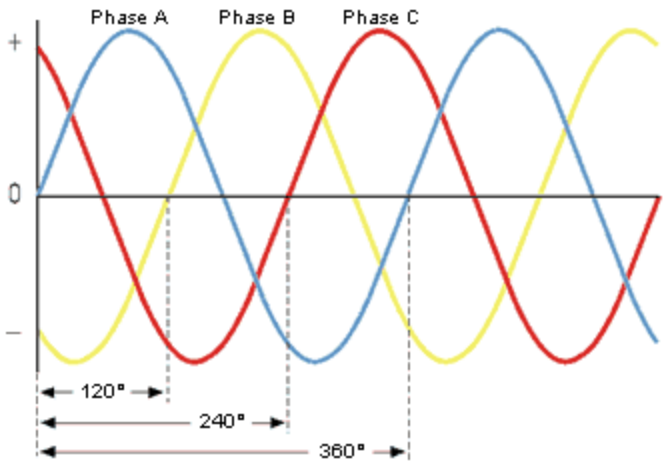
Intro to 3 Phase

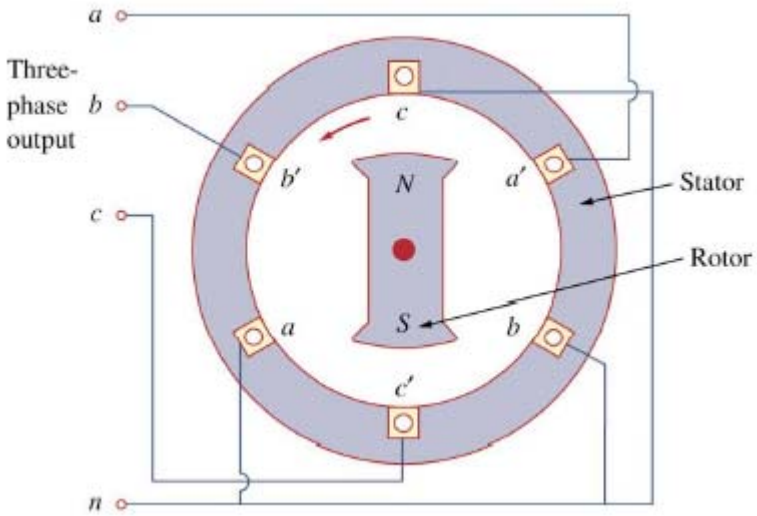
Lesson Plan

- Discussion re 3 phase power and transformers
- Midterm exam review

Transformers and 3-phase power

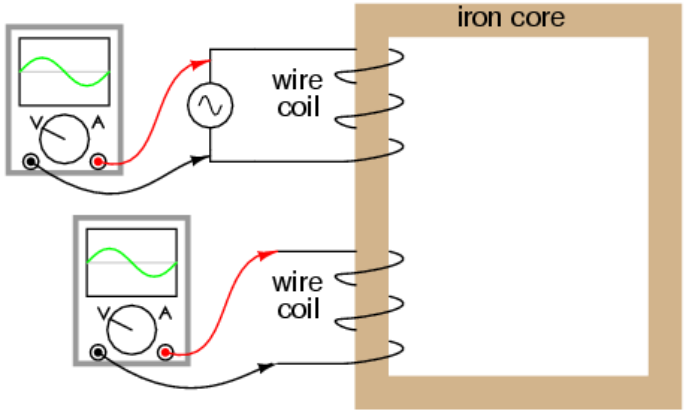
- Why do we care?
- Where do we start?
  - AC/DC wars ….. Who won, who lost, why?
  - How do generators and motors work?
  - How is electricity distributed today?

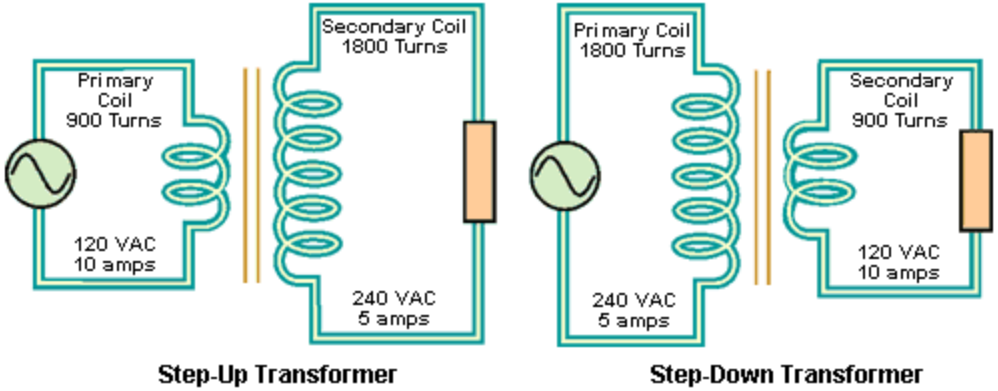




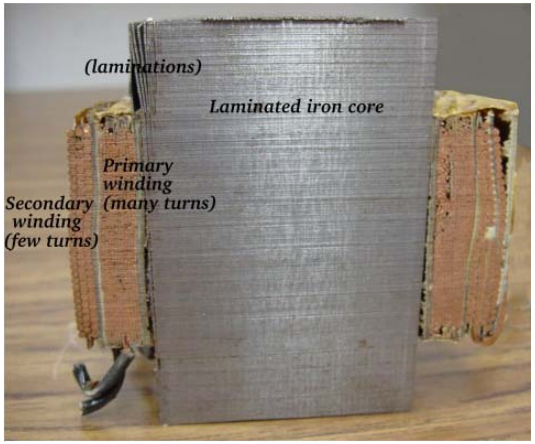
Transformers and 3-phase power

- What do transformers do?
- How do they work?
- Windings and Voltage
  - V1/N1 = V2/N2
  - V1/V2 = N1/N2

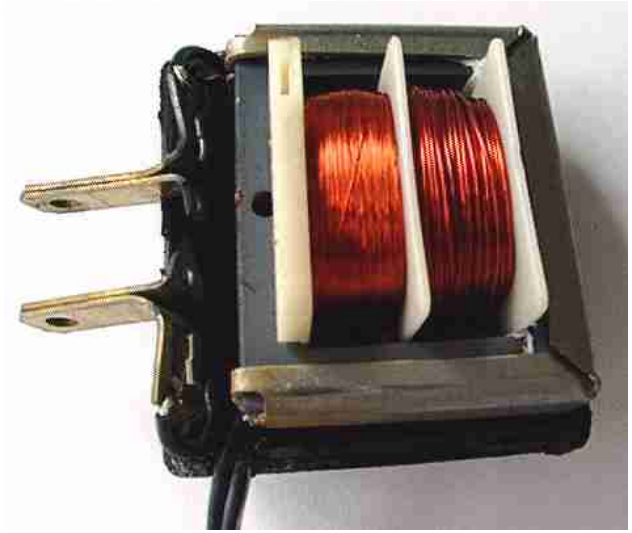


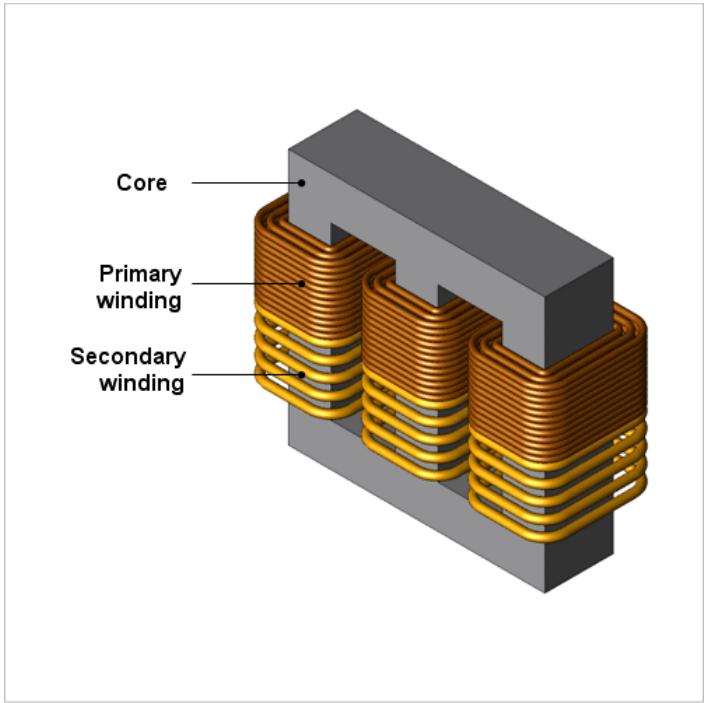


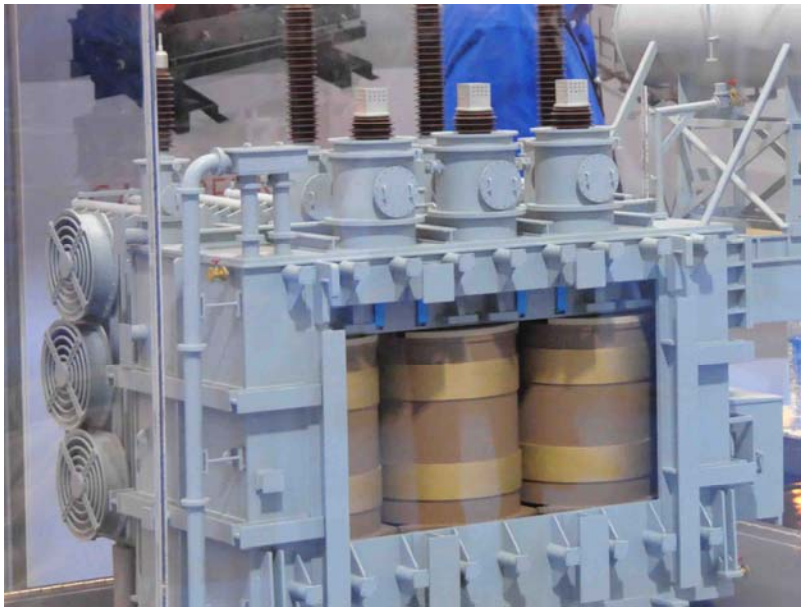
Transformers and 3-phase power



Transformers and 3-phase power

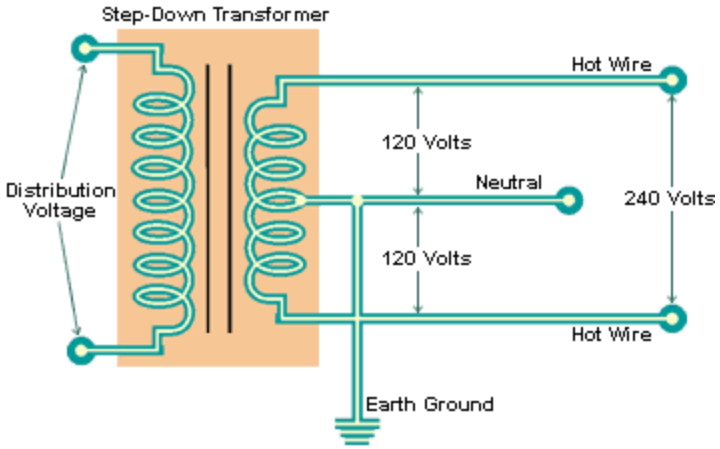


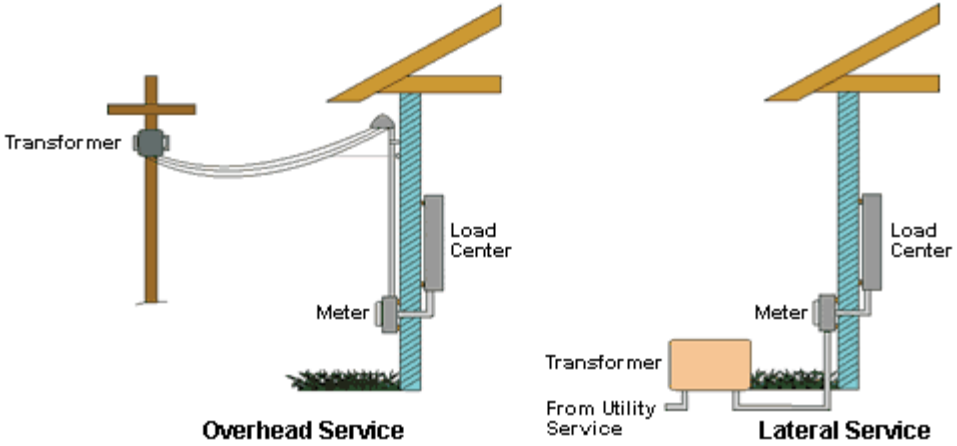




Transformers and 3-phase power

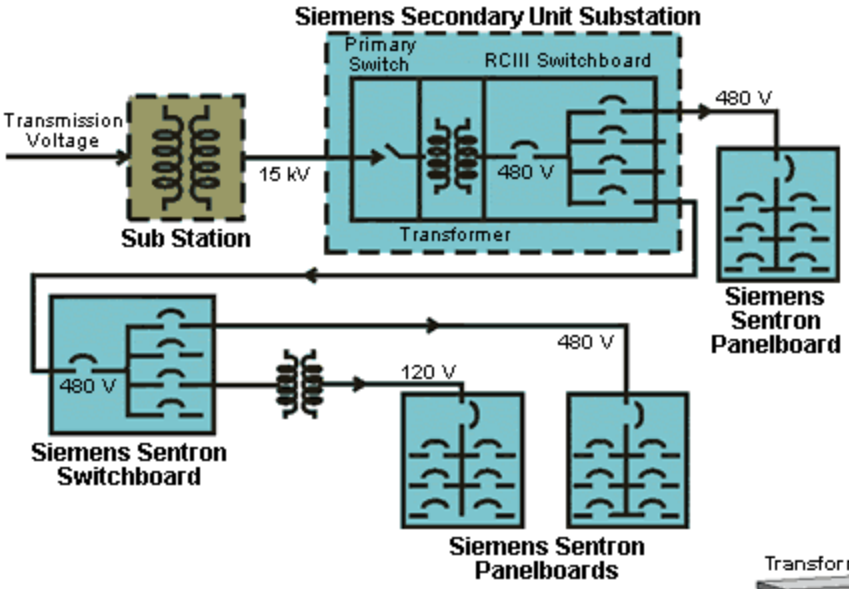
- Typical residential application

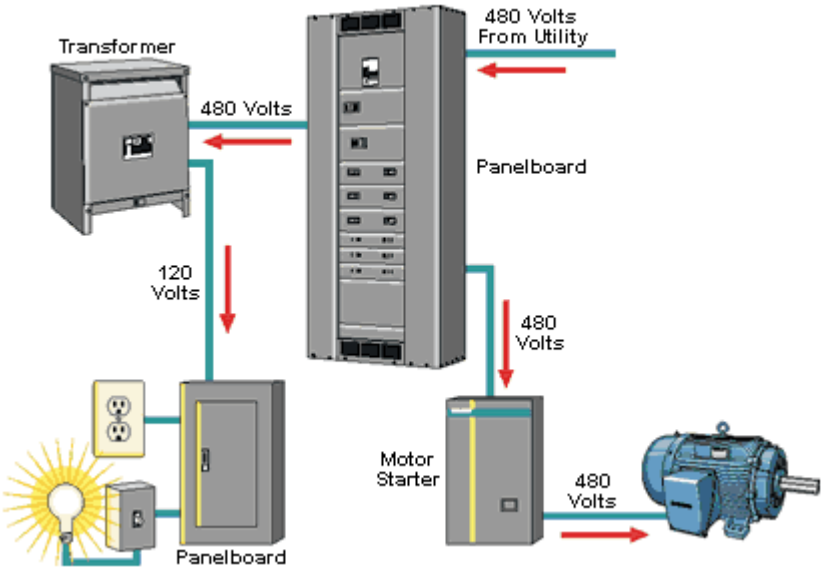




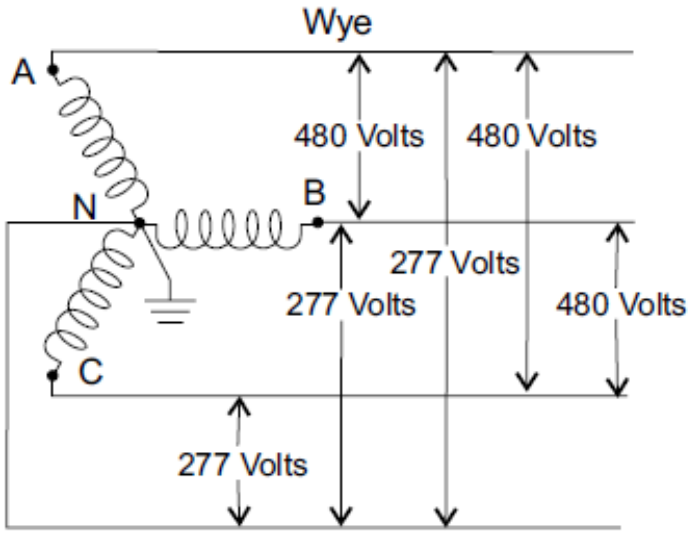
Transformers and 3-phase power

- Typical commercial application

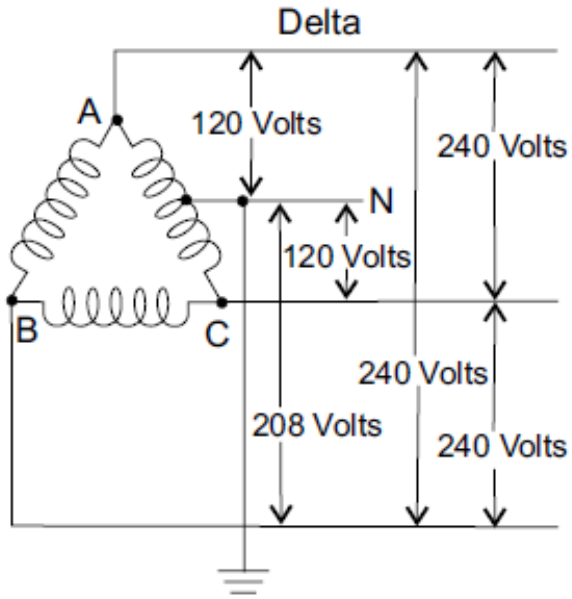




- Three phase wiring



A - B 480 Volts
B - C 480 Volts
C - A 480 Volts
A - N 277 Volts
B - N 277 Volts
C - N 277 Volts

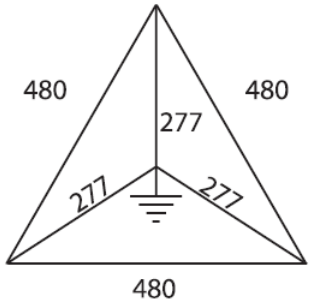


A - B 240 Volts
B - C 240 Volts
C - A 240 Volts
A - N 120 Volts
B - N 208 Volts
C - N 120 Volts

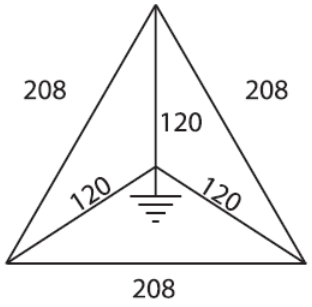
Transformers and 3-phase power

- Three phase wiring

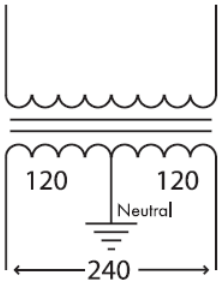
480 Delta: 277 WYE



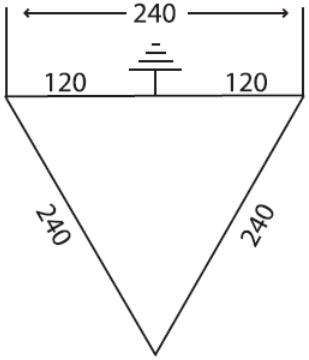
208 Delta: 120 WYE *



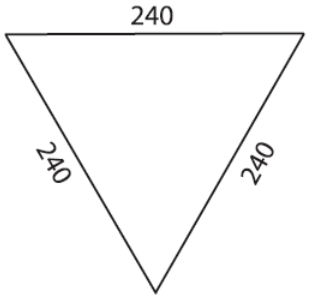
240: 120 Split Phase



240 Delta: 120 Stinger



240 Delta



208 Delta *