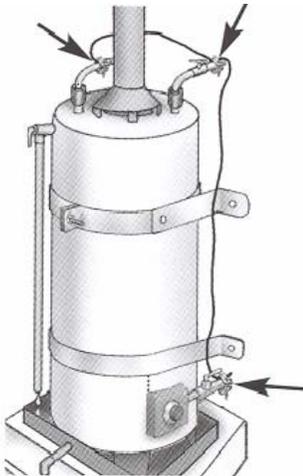
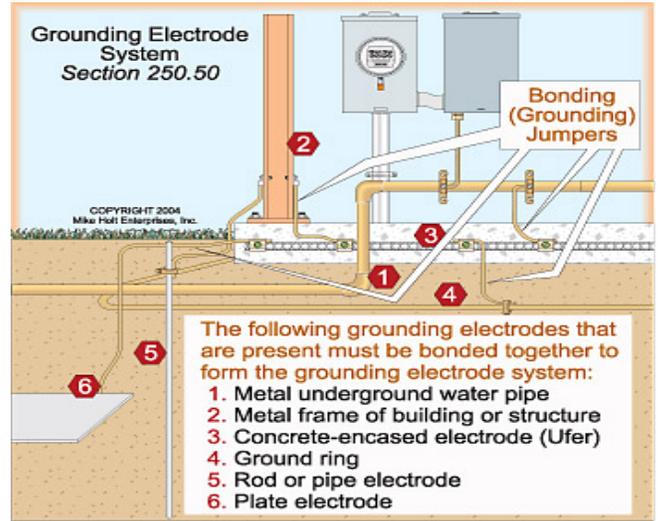


# REQUIRED GROUNDING/BONDING SYSTEMS

The primary function of the Grounding Electrode System (GES) is to discharge the enormous voltage of a lightning strike away from the property and its inhabitants. Once the high voltage electrical energy propagates through the soil, it is converted into heat and magnetic energy. The voltage drop is dramatic. Bonding ensures electrical continuity to prevent differences of voltage potential between conductive components.

Equipment Grounding Conductors (ECCs) Based on NEC T250.122		
Size in AMPS of Breaker or Fuse Protecting Circuit	AWG size of Copper EGC	AWG size of Aluminum EGC
15	14	12
20	12	10
30	10	8
100	8	6
200	6	4



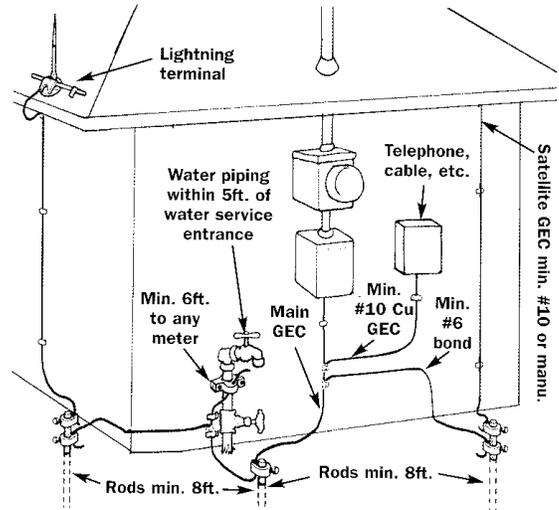
### Bonding the Piping System

Bonding of piping systems is required by code. Many jurisdictions prefer to have hot, cold, and gas-piping systems bonded together at the water heater.

Furthermore, some require that a bonding jumper sized the same as the GEC be run from the water heater to the GEC or service.

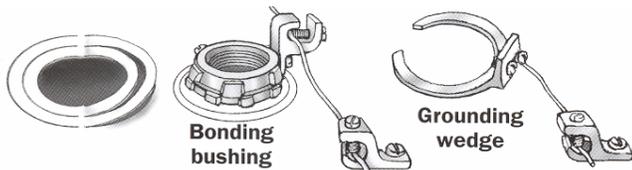
### Bonding

Bonding ensures electrical continuity to prevent differences of voltage potential between conductive components. On the line side (ahead of the main disconnect) it provides a path back to the transformer for faults on service conductors and to limit voltage potential to other systems, such as telephones or cable TV. On the load side (after the main over current protection), it provides a path back to the transformer to clear faults and protect against shocks.



### Intersystem Electrode Bonding

### Fittings with Concentric Rings



### Fittings with Clean Hole

