

Bonding Electrical by Finn Home Inspectors

Electrical bonding is connecting metal components (i.e. pipes, steel beams) to the same electrical potential, that is connecting them to ground. Its purpose is to have any electrical current that somehow energizes the metal to have a firm connection to ground, this way if a person touches the metal, they will not get shocked or electrocuted.

Metal gas or water pipes, metal air ducting and steel beams are the most common items we find that need bonding. Motors in contact with water also need bonding, for instance a Jet tub or hot tub pump motor must be bonded.

Bonding is accomplished by using clamps or other means of attachment and running heavy copper wire between the components one of which already is connected to ground, like a coldwater pipe.

The most common item that we find in the area that needs bonding is the hot water pipe. Many hot water tanks have dielectric couplers that connects the water pipes to the tank, the couplers are to reduce corrosion in the tank but, also break the electrical conductivity, so a bonding wire is run from a cold to a hot water pipe.

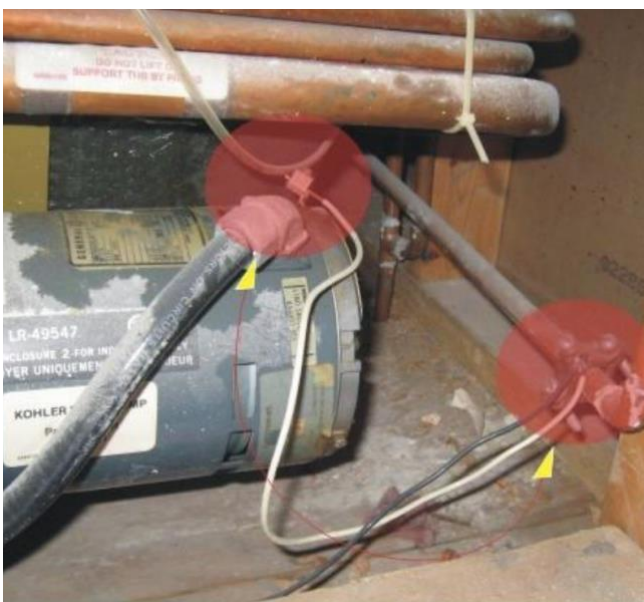
Gas pipes need to be bonded also, which becomes controversial at times, for during initial construction the piping may be considered bonded when it is connected to an appliance, like a boiler. If there are any gas lines made of Corrugated Stainless Steel Tubing, CSST, then it must be bonded. As inspectors we realize that sometimes CSST may be present and we can't see it, or that CSST will be added later and likely not bonded. Thus, we call for an independent bonding wire. Another situation may be that the appliance is removed, and no gas appliance reinstalled, thus leaving the gas line with no bonding.



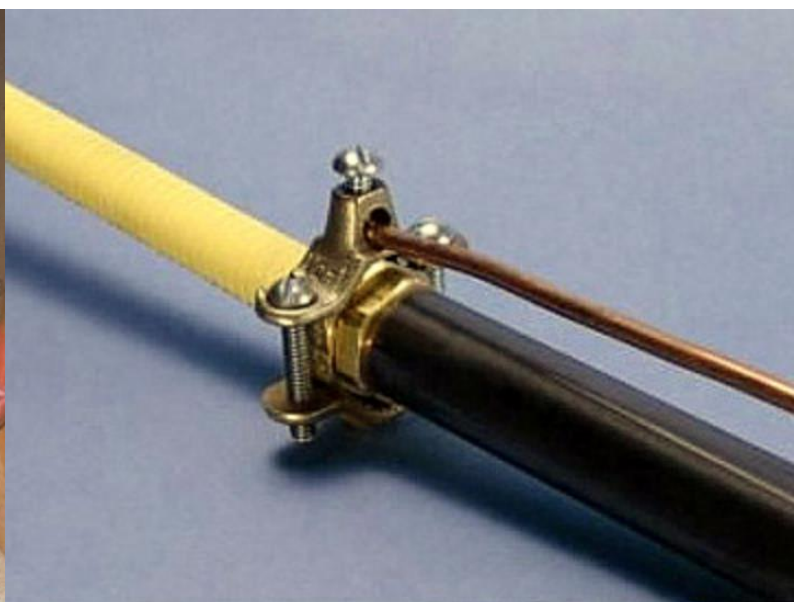
Bonding wire from cold water to hot water pipe and to gas line above a hot water heater.



Bonding wire over a water meter.



Bonding wire from jet tub pump motor to a water pipe.



Bonding clamp on a CSST gas pipe fitting