



## Earth Bonding in Commercial Kitchens Guidance document August 2013

The following is a report prepared by a member of the Technical Steering Group following attendance at a seminar at the Electrical Contractors Association (ECA)

The belief has been that any gas catering appliance with a metal structure requires equipotential earth bonding but this is not the case. This bonding is only required where an electrical appliance is going to be used on a metal surface and if that appliance had a fault which could introduce voltage to that metal surface a potential for electrical shock was introduced.

The above would normally be a fixed metal work surface, not a mobile table, a fixed surface of mild or stainless steel construction. If say a slicer is going to be used on this surface then this work surface is where bonding is required.

There is no requirement for a purely gas cooking appliance to have any supplementary earth bonding. Commercial catering appliances of a metal construction are not considered "extraneous metalwork" therefore no bonding is required. If the appliance has say electric elements or motors, then this will be supplied with a single or three phase supply along with an earth conductor. No requirement for extra bonding.

Any appliance that uses electricity as well as gas will already have an earth wire attached to it by way of its mains lead.

A mobile table used for loading and unloading an appliance does not need any bonding.

A Table between appliances used for loading and unloading does not require earth bonding.

A fixed table that is used for the operations of electrical equipment however should be considered to have a bonding wire fitted. There is a chance that a mains lead to a portable appliance could be damaged and introduce the risk of making the metal work "live".

If there is a fixed table that is screwed and fixed in place to a concrete floor or wall, then an earth bond should be fitted. This is because the concrete may be damp and have an earth resistance path, thus if this was the case and an earth fault occurred, it would be unlikely that the fault current would be sufficient to activate the Residual Current Device protecting the circuit. The table would be live and an electric shock potential introduced.

When any item of equipment is going to be supplied, we as suppliers or installers, should ensure the site is surveyed and the client made aware of what electrical supply is required. We should only then connect when satisfied that supply is correct.

To conclude, any supplementary earth bonding, the client believes or is led to believe is required, it is for them to arrange with a suitably qualified electrician.

### **Note from the ECA web site**

*"Supplementary bonding of metal surfaces etc. is not a specific requirement of BS7671. The designer of the electrical installation may, however, perceive there to be an increased shock risk in that particular location and specify additional earth bonding, which has to be installed by a qualified person"*