

AS/NZS3000:2018 – Equipotential Bonding Requirements in Swimming Pool & Spa Zones UPDATE

What is Equipotential Bonding and Electrical Earthing?

Equipotential bonding is the practice of intentionally connecting all metallic items in a zone together to protect from electric shock. The items that form part of this equipotential bond are then given a single earth through the main switchboard of the house. Equipotential Bonding and Electrical Earthing is a two-step process to ensure electrical safety.

Equipotential bonding differs from Electrical Earthing due to earthing aiming to prevent a dangerous situation in the first place and bonding providing a protective conductor to stop any electrical current passing through metallic items not directly connected to an electrical circuit. In its most basic form, equipotential bonding is in place to minimize the risk of touch voltages.

Both Equipotential bonding and Electrical Earthing are essential ingredients for Electrical Safety within a home or place of work.

Equipotential bonding is sometimes referred to using different terminology such as a poolbond or pool bond point.

What are the requirements as per AS/NZS3000:2018

What's changed?

- AS/NZS3000:2018 was released on 24/6/2018 including the expansion and clarification of section 5.6 'Equipotential Bonding'
- It is mandatory for an Equipotential Bond to be performed with a bonding connection point installed and connected between:
 - The conductive components of any pool/spa structure including the reinforcing metal within the shell of the pool or bond/footing structure
 - The reinforcing metal within the surrounding deck/slab
 - The exposed conductive parts of any electrical equipment that is located within the 'pool zone' (within 1.25m of the water)
 - The exposed conductive parts of electrical equipment that is in contact with pool water, including but not limited to filtration pumps and heating systems
 - Any fixed conductive material that is within the 'pool zone' (1.25m of the water) including but not limited to ladders, diving boards, fences, pipework, windows, doors, spigots
 - Earthing conductors associated with each circuit supplying the pool or spa, or the earthing bar at the switchboard at which the circuits originate

What doesn't need to be part of the equipotential bond?

- Fixed items of conductive material that have an accessible surface that is smaller than 100mm in any dimension within the 'pool zone'
- Metal items outside the 1.25m 'pool zone'
- Electrical equipment that is in contact with pool water that is double insulated. (Double insulated equipment is equipment in which protection against electric shock does not rely on basic insulation only, but in which an additional layer of insulation (called 'supplementary insulation') is provided to give double insulation, there being no provision for protective earthing or reliance upon installation conditions. This equipment is generally manufactured with a non-conductive (insulated) enclosure and is marked either with the words 'double insulated' or with the square inside a square symbol to allow easy identification.



What are the requirements for a Bonding Connection Point or a Pool bond Point?

A Bonding Connection point under the rules shall:

- Be located in a position that is accessible post construction with space for further connections to be made at a later date if required
- Location identified in the switchboard or other permanent location
- Protected against mechanical damage
- Protected against corrosion

What are the Risk if these works aren't performed?

- Electrocution – Death/injury
- Prosecution for failing to follow mandatory rulings
- Disputes with Clients
- Rectification work to penetrate the concrete structure and install suitable equipotential bonding

Pool Construction Timing & Situations:

What's the Process?

Building a pool may be the second biggest investment a family makes after building/buying their home, it is important that the overall project is managed to reflect this.

The pool builder will have the largest contract in the pool zone, so they are considered the head contractor. As the head contractor they are directly responsible for the communication and design of the entire area. The head contractor may not engage all the trades, with the home owner in some situations engaging trades directly, but as the head contractor the builder is required to assist the homeowner in selecting the correct materials and methods of construction. It is the head contractor's legal obligation under their license to ensure the entire project complies with all relevant national and state specific codes & regulations in the construction location.

The head contractor needs to explain the overall process to the client before starting work to ensure the client's plans match theirs and are possible.

During the initial planning for the project all fencing should be discussed as well as any fixed metal items that may be within arm's reach that the client plans to include in the area either during the initial construction phase or at a later date. A list of electrical equipment to be used also needs to be drafted to allow an electrical contractor to be engaged prior to work commencing and an electrical plan designed prior to the construction process beginning.

Once the planning stage has been finalised the Pool Builder can begin site set-outs and relevant excavation works.