

Fact Sheet

Equipotential Bonding Around a Swimming Pool

Electricity and water do not mix. Electrical work must be commenced when installing a swimming pool or a spa.

What is equipotential bonding?

Equipotential bonding involves the connection of metal components which ensures the metal components have the same electrical potential and can be earthed. This will protect the pool user from being electrocuted from the electrical current if a fault was to occur.

The Law

The AS/NZS3000 (also known as the “Wiring Rules”) contains crucial requirements for swimming pools. When conductive metal parts or electrical equipment is within 1.25m of the swimming pool, then equipotential bonding is required. This work must be performed by an appropriately licensed electrician.

The risk

A number of swimming pools and spas are fitted with underwater lighting, cleaning equipment and water circulating pumps powered by electric motors. Faults can occur in the motor’s electrical wiring or in the motors. This can expose swimmers to the risk of an electrical shock.

Some signs of an electrical shock include:

- muscle spasms
- not able to move (known as paralysis) which can lead to drowning
- a tingling sensation
- a shock to the heart which could cause death via electrocution.

Bonding to earth

All metal items must be electrically bonded which are located within 1.25m from a pool edge. It must be bonded to the main earthing system and this includes metal fences, light fittings, ladders, handrails, gates, building structures, pool shell, pool surrounds, metal greater than 100mm and glass panel supporting spigot.

It is important to avoid the risk of an electric shock. All metal items within arm’s reach of a bather (1.25m from the pool edge) must be electrically bonded to the main earthing system of the premises. It’s essential that concrete pools and spas, that contain steel reinforcing also need to be electrically bonded to the earthing system. It’s the responsibility of the appropriately licensed electrician to follow the requirement of the wiring rules and provide compliance.

Installing a pool

An appropriately licensed electrician should be involved at the beginning of an electrical installation, which will require equipotential bond to be installed to the swimming pool or spa.

In the case of a swimming pool or spa requiring the installation of equipotential bonding, the appropriately licensed electrician should attend the site before the concrete is sprayed or poured, so the electrical work can be installed and testing carried out, to enable a Certificate of Installation/Testing to be issued.

Maintenance

Don't do your own electrical work, always use an appropriately licensed electrician.

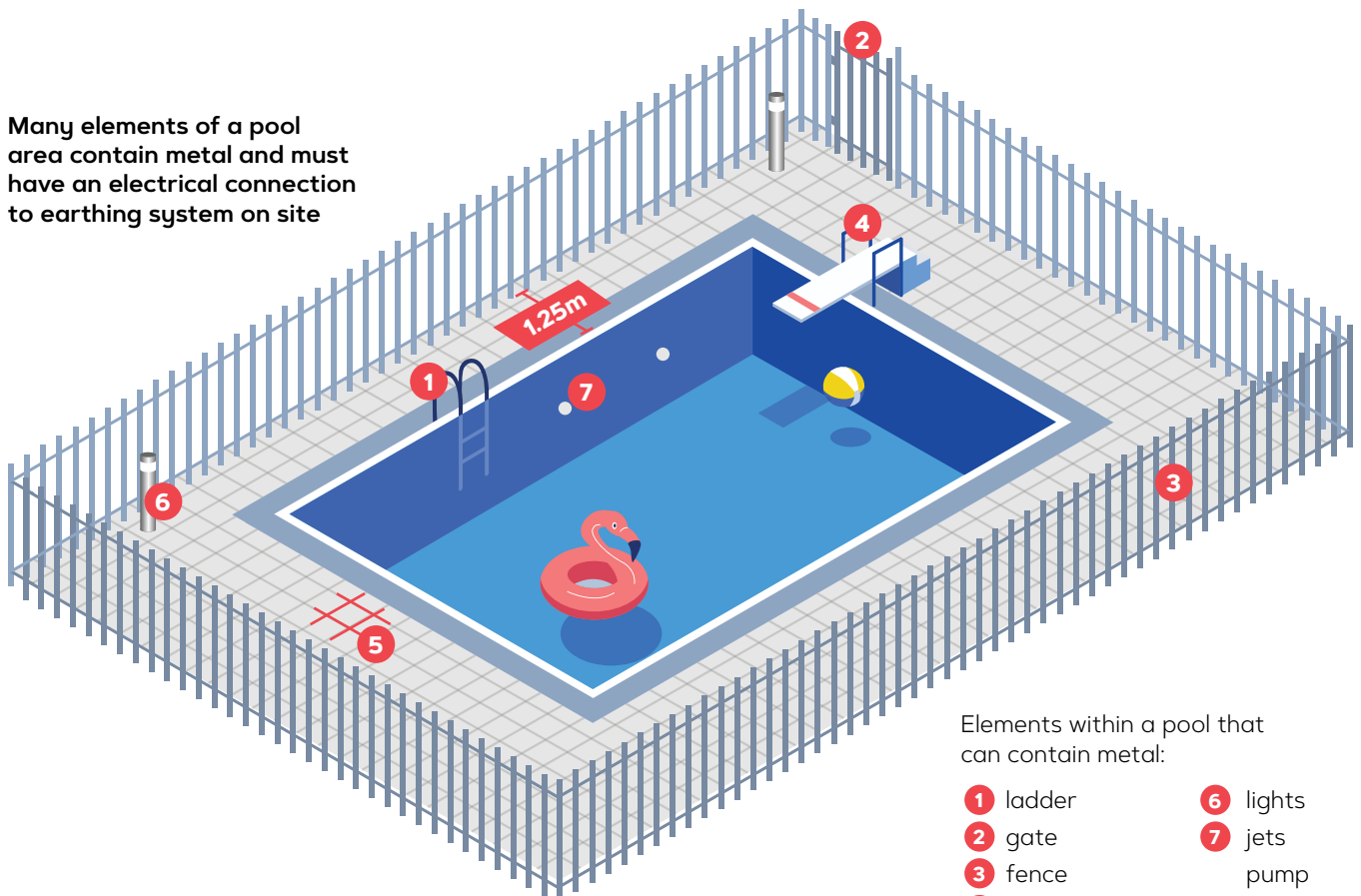
- Don't position lights or electrical appliances where they could fall or slide into the pool
- Use safety switches, they are designed to cut the electrical current in a fraction of a second
- Ensure that electrical equipment requiring waterproof covers are kept in place. These protective covers should only be removed when maintenance takes place
- Regularly check for cracks and defective seals with underwater lights
- Ensure an appropriately licensed electrician does regular maintenance
- Keep all electrical appliances, extension leads or any cords away from water
- Equipment that uses mains power such as lights and pumps must be installed according to manufacturer's instructions and installed by an appropriately licensed electrician.

Electrical Shock response

When someone suffers an electrical shock there are some simple procedures to follow which may save a life.

- Don't touch the patient until the power has been turned off from the main switch. By touching the patient that has been shocked without turning off the power you could be the next victim
- Immediately call the Ambulance on 000 or 112 (on a mobile) and then provide first aid
- If the victim is not breathing, begin Cardiopulmonary Resuscitation (CPR)
- Current CPR signage should be displayed clearly to anyone near the pool.

Many elements of a pool area contain metal and must have an electrical connection to earthing system on site



Elements within a pool that can contain metal:

- | | |
|--------------------|------------|
| 1 ladder | 6 lights |
| 2 gate | 7 jets |
| 3 fence | pump |
| 4 diving board | hand rails |
| 5 reinforcing mesh | |

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