Protecting your business through proper compliance

ABOVE: Pool barriers and equipotential bonding are two big compliance issues

As the swimming pool and spa industry becomes more professional, it is also facing increased scrutiny from regulators and an increased risk of litigation from aggrieved customers.

Ensuring compliance with relevant codes has never been more important. Thanks in part to easier access to information, consumers are now savvier and are more likely to take issue with aspects of the project they feel have not been completed properly. In the swimming pool and spa industry as with many building based industries and those that involve water and electricity, there is the added important issue of safety to end users.

Doing a good job is a given, and complying with regulations, codes and guidelines helps mitigate risk. But as well as ensuring risk is mitigated, risk must also be insured against.

Key and secondary codes

Spiros Dassakis, chief operating officer of SPASA Australia, says there is an absolute minimum of four main Australian Standards that pool and spa service technicians should adhere to, and approximately seven for pool and spa builders, but there are many more that should be understood.

"On top of those, there are related standards like plumbing, gas and electricals that we need to be aware of, but we may not be able to undertake work covered in the standards."

Understanding the details of those standards helps create a better working relationship with other trades, leading to a more cost effective and compliant project.

There are various standards that are currently being reviewed, including the electrical standard (otherwise known as the wiring rules) which covers equipotential bonding and the Temporary Fencing & Hoardings Standard which for the first time will include a specific section related to swimming pools and spas.

Dassakis says that equipotential bonding is not just important for pool and spa builders, but also for pool and spa technicians because replacing equipment such as luminaires, installing pumps or facilitating the installation of heating equipment may require bonding under the electrical standard.

"The same can be said for temporary fencing," he says. "And with a growing focus in this space we are seeing a great level of policing by regulators and certifiers in almost every jurisdiction."

Dassakis says that temporary fencing is a work health and safety issue and the draft Temporary Fencing & Hoardings Standard is likely to come up for public consultation in June this year.

"In many ways that will crystallise the requirement for a temporary fence in the installation or construction of a pool," he says.

"The temporary pool fence should restrict access of unauthorised persons during the construction phase and when complete – the pool should not be used by anyone until such time as it has been approved as compliant by the local authority, full stop, end of story."

The issue of temporary fencing gained renewed interest following the inquest into the 2015 death of 21-month-old Jake Rhodes, who drowned in a newly built North Coast NSW pool whose permanent pool fence was still under construction.

The deputy coroner found the toddler likely gained entry through a gap in the temporary fence, and recommended changes to the law to provide for warning notices to be erected and maintained during pool construction which state the pool is not to be used until issued a final occupation certificate.

Another issue that has been of concern to the industry over time relates to safety suctions. While risks associated with safety suctions have now been significantly minimised, it can still be confusing, so SPASA Australia has produced a guideline available on its website to help industry participants better understand Australian Standard AS1926.3 – 2010 Swimming Pool Safety – Water Recirculation Systems.

"The free guideline seeks to further clarify the standard and they should be read together to better understand the requirements of the standard and how to follow it," says Dassakis.

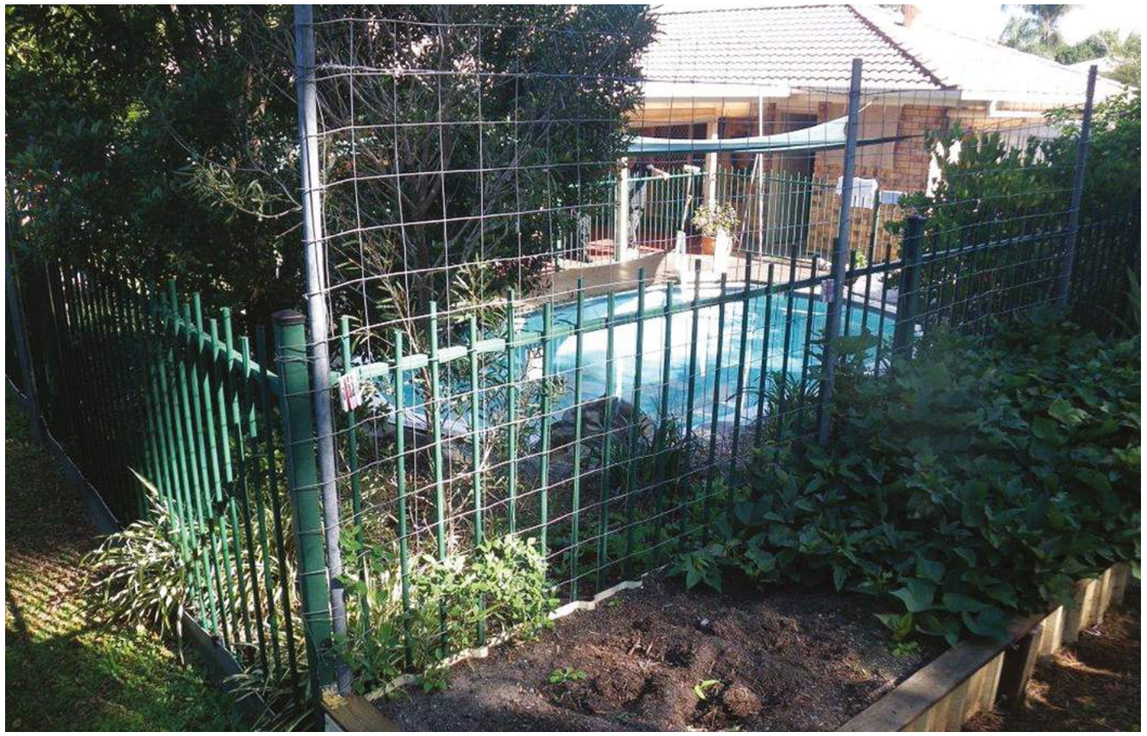
LEFT: There is an absolute minimum of four main Australian Standards that pool and spa service technicians should adhere to, and approximately seven for pool and spa builders

BOTTOM: The Conductor Hub gives the contractor and homeowner peace of mind knowing there is a "safety seal" that can be easily tested and inspected at any time

He also points out that the National Construction Code (NCC) applies to all installation and construction of swimming pools and spas, and is also critical for service technicians who are replacing pipes, pumps and suction covers.

Equipotential bonding

Equipotential bonding is the act of bonding all the metal components in an area together to create substantially the same electrical potential. In a swimming pool or spa environment, these components could include the reinforcing steel shell of the swimming pool, the steel within a deck or under tiling, the metal pool fencing or spigots, any metal lights, windows, downpipes, ladders etc that are within arm's reach (1.25m) of the pool/spa's edge.



ABOVE: A good way for a visiting pool tech to cover themselves and ensure the owner is made aware of any barrier or other issue is to leave a small note on the invoice

The Standard AS/NZS 3000:2007 Electrical installations (also known as the Wiring Rules) covers equipotential bonding for swimming pools. This standard is currently under review and there are a number of elements that may change. SPLASH! will update this story when the review is completed, but we currently need to look at what the situation is at present.

SPASA Australia has published a document repeated here in the breakout box on page 38, summarising important elements of the AS/NZS 3000:2007 – as it stands at present, before the current review is completed.

Em Ritchie, managing director of Conductor Hub, says equipotential bonding has widely been a point of confusion across the industry as to which trade the liability lies with in relation to ensuring this requirement is met.

> *"Equipotential bonding is not just important for pool and spa builders, but also for pool and spa technicians."*

"As a tradesperson who is constructing the area that is included in this 'equipotential zone' being either a builder, pool builder or landscaper it is your responsibility to work with a licenced electrician to ensure that your work complies with the standard and you are making a safe environment for the end user," she says.

"A swimming pool is one of the biggest investments a homeowner will make outside the purchase of their home, it is an area that is constructed to be enjoyed by family and friends and it is paramount that the pool environment is safe."

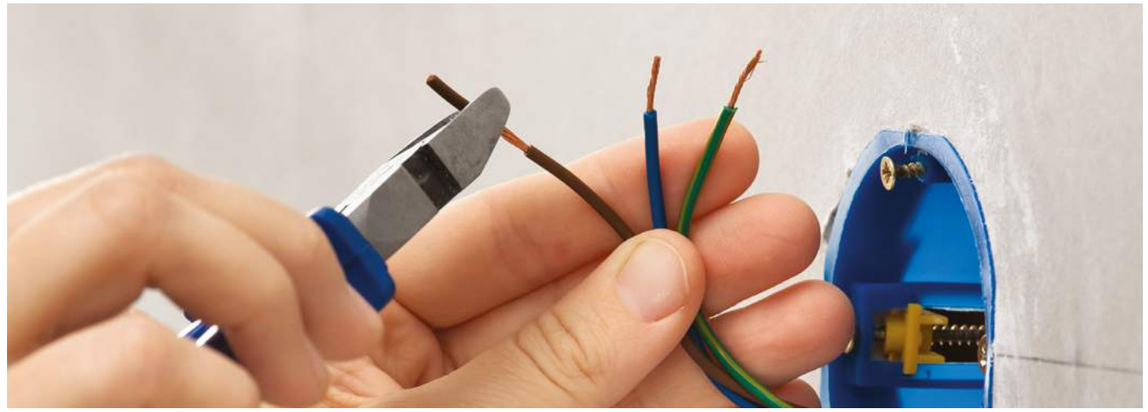
One new product that can help is made by Ritchie's company, and is also called Conductor Hub – a connection and inspection point for equipotential bonding.

The Conductor Hub is a world first, Australian-made hub that is installed between the reinforcing steel before the concrete is poured and fits inside standard mesh without requiring any steel cutting to ensure structural integrity is maintained. It is made up of a copper bar, stainless steel zip-ties and a buss bar housed in a lidded base made from ASA, which includes a unique collar that can be sized to suit any concrete thickness.

Ritchie says the Conductor Hub has the ability to include multiple connection points either during initial construction, or over time as additions are made to a pool environment. These connections are encapsulated for safety and protection in-line with the wiring rules which require all grounding points to be protected against mechanical damage and corrosion.

"The requirement under legislation for an equipotential bond and an accessible connection point to be installed has been around since 2007, but to date, there has not been a product on the market that has satisfied all the requirements of the rules," she says.

"Developing the Conductor Hub and making it available in the market has been one of our greatest achievements. To know that you have invented a product that can ensure the compliance and the safety



ABOVE: It is the responsibility of the pool builder to work with a licenced electrician to ensure the work complies with the standard

BELOW: It's not simply a case of saying, "that's the way we've always done it"

BELOW RIGHT: Temporary fencing has seen an increased level of policing by regulators and certifiers in almost every jurisdiction

IMAGE CREDIT: Terry White Cap Fencing

of people from electrical shock in these environments is quite an accomplishment."

Ritchie believes installing a Conductor Hub gives the contractor and the homeowner added peace of mind knowing there is a "safety seal" that can be easily tested and inspected at any time.

She says it is important that all contractors know their liability when it comes to the legislation.

"With the new Wiring Rules set to be released later this year and equipotential bonding requirements to be once again included, it is a good time to familiarise yourself with the current requirements to ensure you are working in-line with your legal obligations."

Insurance

Dassakis says that anyone who is providing any consulting or design aspect to their work should have appropriate professional indemnity insurance attached.

"This is critical in the off-chance that advice provided – or the design of the installation – is flawed or not fit for purpose. Or worse – leads to injury."

Koula Stamatovski from AB Phillips has offered some advice on what insurance swimming pool builders need.

"There are two types of insurances that swimming pool builders need to operate a business," she says. "Builders warranty insurance and contract works insurance."

Builders warranty insurance is a legislated product that differs between states. It is essentially a consumer protection policy principally designed to respond if a builder was to die, disappear or go insolvent.

Contract works insurance is intended to cover your construction project while in progress for things such as weather related events or theft. For example, if a swimming pool was to cave in due to heavy rainfall, the labour and material costs involved to bring that job back to where it was prior to the weather event would be covered under this policy. Contract works insurance also typically includes public and products liability.

"There are a number of other policies a swimming pool builder may need based on their business particulars and the owner's attitude to risk," says Stamatovski. "These policies may include management liability, tools of trade, property insurance and motor vehicle covers to name a few."

Stamatovski also says that if a builder gets involved in design work in-house, they will require a professional indemnity policy.

"These are about protecting the business for third party losses that arise from the design work or professional advice they provide. If this work is outsourced, the builder's risk diminishes proportionate to the amount of in-house design performed. It is becoming more common as a principal contractor, that builders are being exposed to litigation of a professional nature."

She also says that swimming pool builders working in the commercial sector have a requirement for contract works insurance with much higher limits aligning to the size of the contracts they are undertaking. However, there is no requirement for builders warranty insurance on commercial swimming pool construction projects.

Mediation and being proactive

Dassakis says that when there is an issue, the pool and spa builder or technician should try to manage the problem before it gets to a dispute stage.

"By the time complaints come to SPASA, in many cases, the contractor and the consumer may have had ample time and opportunity to navigate a mutually acceptable solution. Issues arise when communication breaks down – our role is to ensure the SPASA member is supported while at the same time the consumers concern is taken seriously. In this regard, our main focus is to reconnect the consumer and contractor back to "fix mode" – to help them find a resolution.

"Many of these things are minor in nature, but if left alone can fester – the magnifying glass comes out and everything is scrutinised in greater detail and has the potential to be blown out of proportion."

Fencing and service techs

Everyone who attends a site has a duty of care to inform the owner of any issue they believe exists, says Dassakis.

"In some instances, contractors may believe there is an issue but not fully understand what that issue is. In such cases the contractor should direct the pool owner to seek expert opinion – through SPASA, council or the state regulator."

Dassakis suggests a good way to cover yourself and ensure the owner is made aware of the issue is to leave a small note on your invoice.

"It is something the customer must read because he pays the bill," he says.

He says the wording should be very simple, such as: "In the interests of safety we believe there is an issue with your gate/fence/barrier/suction. As we are not experts in the space, you should seek expert opinion. Please seek an expert through SPASA or seek guidance through your local council."

Dassakis points out that one of the benefits of SPASA membership is that members have access to on-board expertise and will trawl through regulations and standards on the members behalf.

"While it's important for businesses to understand their compliance requirements, they can always refer, discuss, question and challenge these instruments with someone within the association who has dealt with this on numerous occasions, in many circumstances and in most sectors."

He also highlights the fact that ignorance of the law is no defence.

"'I didn't know' doesn't cut it! The modern consumer has access to unprecedented information – the internet has opened up access to legislation, forums and – rightly or wrongly – consumers are more informed than ever – and we owe it to ourselves as an industry to be better informed. And the need for continued professional development cannot be overestimated."

Non-compliant materials

Crystal Ray of Construct Law Group says that the issue of non-conforming building products can affect pool and spa industry members.

"The construction industry has recently been the subject of a further layer of regulation – this time, in relation to non-conforming building products," she says.

"This follows a string of highly publicised building product failures in both Australia and internationally forcing governments and stakeholders to reduce the instances of, and increase accountability for, non-conforming building products being used in construction."

The introduction of laws relating to non-conforming building products is part of a wider focus on building safety in Australia, particularly in light of:

- The fire in the Lacrosse Building in Melbourne which was spread through external cladding;
- The widespread installation of faulty electrical cabling (Infinity cabling) which affected up to 22,000 projects; and
- Concerns about the importation of products containing asbestos.

What is a Non-Conforming Building Product?

A non-conforming building product (NCBP) is any building product or material which is associated with a building or the construction of a building and which:

- Does not meet the required standard for the intended use;
- Claims to be something/do something that it is not;
- Is marketed or advertised with the intent to deceive.

The specific requirements for building products are governed by the National Construction Code, building regulation laws in each state and territory as well as specialist regulatory regimes (such as WaterMark certification in respect of plumbing products).

"The rules relating to NCBPs apply to every link of the supply chain, from manufacturers to importers to suppliers to contractors and consumers," says Ray. "No matter where you fit within the chain of responsibility, you have a duty to ensure the next person in the supply chain is given all required information."

This includes information such as:

- The suitability of the product for its intended use in the conditions;
- Installation instructions; and
- Operation instructions.

"You need to ensure that any products that are used in the construction of a pool are safe and suitable for their intended purposed," she says.

The Australian Building Codes Board provides some guidance on different methods of determining whether a product conforms and complies with the National Construction Code (which can assist in determining that a product is not a NCBP), including whether a product has a:

> *"The pool should not be used by anyone until such time as it has been approved as compliant by the local authority, full stop, end of story."*

- Certificate of Conformity by CodeMark or WaterMark;
- Certificate of Accreditation from a State or Territory Accreditation authority;
- Certificate from an appropriately qualified person such as an engineer;
- Certificate from a product certification body accredited by JAS-ANZ;
- Report registered by a registered testing authority.

Equipotential bonding technical update

This clarification of equipotential bonding requirements for swimming pools and spas has been created by SPASA Australia in collaboration with Master Electricians Australia. Bear in mind the Wiring Rules are currently under review, and this information relates to the standard as it currently exists.

1.0 The Standard

AS/NZS 3000:2007 Electrical installations (also known as the "Wiring Rules"), is the bible for all electricians but it also contains essential requirements for swimming pools and spas that all pool & spa builders and barrier installers need to be familiar with. The Wiring Rules are called up via legislation in all Australian states and therefore compliance with its requirements is mandatory.

2.0 Some Definitions

2.1 Equipotential Bonding (bonding or bonded): The joining together of earthing wires to a common earth point.

2.2 Conductive: Not defined in AS/NZS3000 but is a material capable of carrying an electrical current of a strength that is potentially dangerous to those who come into contact with it, such as steel, many other metals and includes the water in a swimming pool or spa.

Note: Pure water is not conductive, but all the minerals and chemicals in pool water make it highly conductive. Clay soils are much more conductive than sand, but the difference shrinks markedly when both are saturated.

2.3 Double insulation: Primary insulation, common to the insulation of all mains voltage appliances and wiring, plus supplementary insulation. A device using extra low voltage (ELV) through a transformer is deemed to be double insulated. See also AS/NZS 3000, Sub section 7.4 – electrical separation. Examples include 12-volt pool lights and robotic cleaners supplied with their dedicated ELV power supply, etc

2.4 Exposed: Capable of being touched (with the standard test finger as specified in AS/NZ 3100 Approval and test specification - General requirements for electrical equipment).

3.0 Introduction to Equipotential Bonding

3.1 Equipotential bonding is neither easy for a pool builder to understand nor easy to implement. However, it is a mandatory requirement in all states. There is a general assumption that equipotential bonding only applies to concrete swimming pools and spas whereas, it can, in differing ways be applicable to ALL types of swimming pools and spas.

3.2 Equipotential bonding is regulated and deemed to be electrical work, therefore it must be carried out by a licenced electrician. However, under contract, all pool builders may be held liable in the first instance, should an accident occur because it was not done or not done correctly. Accordingly, all pool builders and installers of barriers need to have a better grasp of what is involved.

Note: Full details for the bonding of swimming pools are set out in Clause 5.6.2.6 of AS/NZS 3000 Wiring Rules.

3.3 What is equipotential bonding?

Equipotential bonding is the equalisation of electrical potential (voltage). By connecting any electrically conductive building materials (pool equipment, pool fences, diving boards, etc) to the earthing system of the house by electrical cables.

Using a simple analogy

"Just as water in a pipeline can escape when joints or the pipe itself deteriorates, so electricity can escape when the insulation of a charged electrical circuit fails. The only difference being that one can get you wet while the other can kill you. Escaping electricity can reach and electrify otherwise latent conductive material such as a steel reinforced concrete pool structure, metal fixtures, pool water and the exposed surface of electrical equipment, any one of which can be fatal."

By joining items of differing potential to a common earth (bonding), the potential for electric shock in the event of electrical leakage is avoided as it all goes straight to earth.

4.0 What needs to be Bonded?

4.1 The exposed conductive parts of 240V electrical equipment in a pool or spa zone. This may include items such as the metal motor of a pool pump, the metal cabinet of a heat pump or gas heater using mains voltage (240V) if it is not isolated (insulated) from the electrical equipment inside and any control equipment with a conductive surface or a conductive part that is exposed.

4.2 The conductive parts of electrical equipment that are in contact with the pool water, wherever located.

Note: Equipment, including pumps, that plugs into a socket outlet using an earthed 3 pin plug are already earthed back to the switchboard and thus do not require bonding.

4.3 The steel reinforcement in a concrete pool shell, including any attached and steel reinforced beam or decking.

4.4 The steel in a reinforced beam or deck attached or adjacent to any type of pool.

Note: Only one bonding point is required when all the steel reinforcement is wire-tied as one complete unit.

4.5 Where 4.1 and/or 4.2 above apply, bonding shall be extended to:

a) Any conductive fittings in or attached to the pool such as ladders, hand rails, diving boards, etc.

b) Any conductive material within 1.25m of the pool edge including metal pool barriers and metal supports for glass pool barriers.

Note: When all common pool equipment (pumps, heaters, etc) is earthed back to the switchboard through the wiring and a 3 pin plug, then 4.1 and 4.2 do not apply, and as a consequence 4.3 and 4.5 above also do not apply, leaving only the pool and decking reinforcement to be bonded.

5.0 What Doesn't Require Bonding?

(a) Pool equipment and other items exempted under 4.0 above.

(b) Fixed conductive parts and fittings that are not part of electrical equipment and not more than 100mm in any dimension.

(c) Any item of equipment that is double insulated or operating at extra low voltage through a transformer. E.g. an underwater light or electric cleaner, a pump manufactured to AS/NZS 60335.2.51.

6.0 Engaging an Electrician

Equipotential bonding is a regulated activity and deemed to be electrical work. Therefore, it must only be carried out by a licenced electrician. Pool and spa builders and barrier installers should get an electrician involved early in the process to avoid costly additional works later on. In some states, it may be a requirement that bonding of the pool reinforcement steel be inspected and/or certified prior to the concrete being placed.

Note: It is possible that AS/NZS 3000 may be interpreted differently by some electricians and state energy regulators.

Important Note:

A new revision of AS/NZS 3000 is imminent. SPASA Australia will provide an updated overview once the new standard is published.

AS 1926.1-2012 is one of the critical codes to be across

How can you protect yourself?

Ray says you cannot contract out of your obligations in respect of NCBP but you can take steps to protect yourself from accountability in the event that a product is determined to be a NCBP.

As a pool builder or retailer of building products used in the construction of a pool such steps would include:

- Ensuring that you obtain all necessary information when you receive the product to be able to pass it on to the next person in the chain of responsibility and the eventual owner;
- Do an audit of your current processes and building products to ensure compliance;
- Consider adding a contractual warranty for any products supplied to you or purchased by you which states that the product is safe for its intended use in the construction of the pool – such a warranty could then be used to recover any costs you expended in complying with the legislation in the event that compliance enforcement action is brought against you; and
- Contact your insurance broker to see if you are able to obtain coverage for NCBPs (including products subject to recalls).

Who governs NCBPs?

Each state and territory is responsible for the governance of NCBP and is managed in:

- Queensland by the Queensland Building and Construction Commission (QBCC);
- New South Wales by the New South Wales Office of Fair Trading;
- Victoria by the Victorian Building Authority;
- Western Australia by the Department of Mines, Industry Regulation and Safety;
- Tasmania by the Department of Justice;

Critical codes

Spiros Dassakis says these are the MINIMUM codes members of the pool and spa industry must have a good knowledge of.

Pool and spa builder

• AS 1926.1-2012 Swimming pool safety barriers for swimming pools

Note: In the Northern Territory, swimming pool fences must comply with various legislation and Standards, depending on when the pool was constructed (before or after 1 January 2003)

Note: Queensland has developed a pool safety standard, Queensland Development Code Mandatory Practice 3.4 (MP 3.4), it is a modified AS 1926.1-2007, Swimming pool safety – Safety barriers for swimming pools.

• AS/NZS 1839:1994 Swimming pools - Premoulded fibre-reinforced plastics - Installation

• AS 2783-1992 Use of reinforced concrete for small swimming pools

• AS 2610.2-2007 Spa pools Private spas

• AS 1926.3-2010 Swimming pool safety Water recirculation systems

• AS 3633-1989 Private swimming pools - Water quality

• National Construction Code

Pool and spa service technician

• AS 1926.1-2012 Swimming pool safety barriers for swimming pools

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• AS 1926.3-2010 Swimming pool safety Water recirculation systems

• AS 3633-1989 Private swimming pools - Water quality

State Legislation

Each Australian state and territory has its own legislation and regulatory schemes in relation to swimming pool and spa planning, construction, certification, safety as well as the management of public pools.

• South Australia by local Councils and the Department of Planning Transport and Infrastructure;
• Australian Capital Territory by the Environment, Planning and Sustainable Development Directorate – Planning;
• Northern Territory by the Building and Development Department.

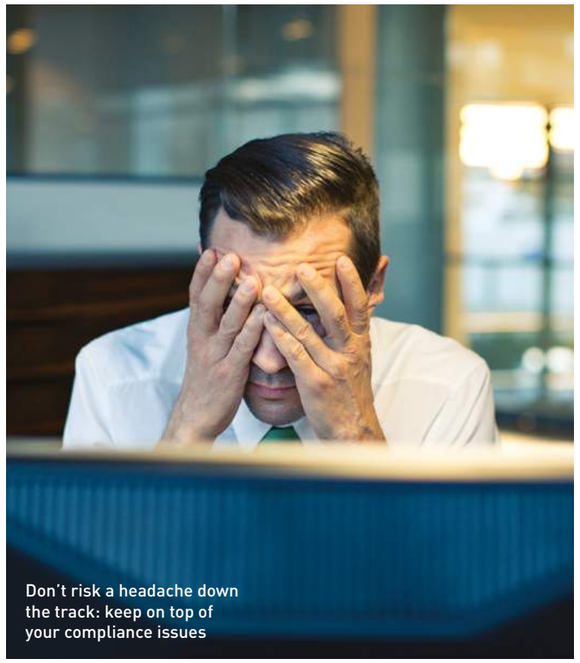
Important matters to remember

In running your business, it is important to keep in mind:

• That the rules relating to NCBP's affect everyone in the industry both up and down the supply chain; and
• You have an obligation to ensure that what you are supplying is not a NCBP (and to provide and keep records of this).

As NCBPs are governed differently between each state and territory it is important that you are aware of your obligations in each state as some states (particularly Queensland following the recent introduction of enforcement powers being given to the QBCC) have wide ranging powers, including the ability to enter places to gather evidence, direct remedial works, take disciplinary action and even prosecute. ■

Understanding regulations and standards is critical to running a successful building company


Don't risk a headache down the track: keep on top of your compliance issues

Contacts

AB Phillips: www.abphillips.com.au

Conductor Hub: www.conductorhub.com.au

Construct Law Group: www.constructlaw.com.au

SPASA Australia: www.spasa.com.au

For links to Standards go to splashmagazine.com.au/quicklinks