

Unearthed electricity: The shocking consequences

Issued by [CBI-electric: low voltage](#)

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Dangerous contact with electricity resulted in 34 [accidents](#) on South African construction sites, leading to the death of one person and four being permanently disabled in 2022. "Even one death is one too many," says Dr Andrew Dickson, engineering executive at [CBI-electric: low voltage](#).



"Companies need to ensure that their staff is protected from potentially lethal shocks by ensuring that earth leakage devices are installed. These products are designed to limit the amount of electrical current entering the human body to under 30 milliamps as anything above this could be fatal."

He explains that all too often, injuries and deaths associated with electrocution occur if companies take shortcuts when it comes to their electrical installations and do not comply with SANS 10142, the standard for all low-voltage electrical installations. "This year, however, the Occupational Health and Safety (OHS) Amendment Bill will be signed into law, enforcing stricter consequences for non-compliance with health and safety standards. Going forward, all employers will need to ensure that no employee is permitted to do any work or operate any machinery unless precautionary measures have been taken or else face a fine of up to R5,000,000 and /or five years of jail time."

"The country's mining industry - another environment where electricity poses a danger - can also expect tougher penalties for health and safety violations, with the tabling of the Mine Health and Safety Amendment Bill. This could see non-compliance costing companies up to 10% of their annual turnover, not to mention being held criminally liable for corporate manslaughter," notes Dr Dickson.

He points out that many electrical or electrocution accidents on construction sites and mines occur as a result of

employees bypassing the earth leakage.

“Workers often run extension cords to power their tools from a single point of supply. But these sites are quite rugged and dusty, and tools are often damaged. Consequently, there are many opportunities for the earth leakage to trip, causing irritation and delays. While the protective device has performed its function correctly, this is not always fully appreciated and so a conscious decision may be made to bypass the earth leakage. This could lead to a very dangerous and potentially lethal electrical supply as contact by any person on-site to the electrical network or to a connected power tool or machinery could result in a significant or even fatal shock”.

“On mines, faulty machinery usually precipitates an electrical accident,” adds Dr Dickson. “Leakage currents are often an indication that there is a fault with a machine which will then need to be switched off and repaired. But, as employees are usually measured on output, they avoid flagging that there is an issue and instead bypass the earth leakage to keep operating the machine. Two scenarios can then occur: at some point in the future the machine breaks down causing longer downtime, or an electrical accident occurs which could be fatal and culminate in lost production time - both can be avoidable catastrophic consequences for the employee and employer.”

He highlights that, with the introduction of the amendment bills, this will force employers to be more aware of operating practices and their electrical installations.

“Failure to ensure compliance and valid temporary connections may result in a fine or imprisonment. And while being proactive in ensuring compliance will have an upfront cost, is the alternative really an option?”

“Though the penalty is imposed on the company, it is often the employee without the knowledge of their superior that bypasses the protection, thus resulting in a death that could have been avoided. Employees don't realise the value of an earth leakage device until tragedy strikes. South African businesses must therefore educate their staff members about the pitfalls of bypassing the earth leakage. Not only does this help to uphold the employee's right to a safe and healthy working environment at work, but doing so could save lives. Fortunately, companies like CBI-electric: low voltage offer free training in person and online on the use of [earth leakage devices](#) and about [electrical safety awareness](#),” concludes Dr Dickson.

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