



## Electricity Industry Bulletin No: 64 March 2007

### FOR THE ATTENTION OF ALL ELECTRICAL WORKERS

#### 1. ACCREDITED BUILDER PROSECUTED

Anthony Jon Wheaton was fined \$4000 (with court costs of \$29.04) in the Hobart Magistrate's Court on 31 January 2007, on one charge of failing to hold an electrical contractor's licence contrary to the *Electricity Industry Safety and Administration Act 1997*, between 1 October 2004 and 26 May 2005.

The hearing revolved around renovations Mr Wheaton was conducting at the Black Prince Hotel and Ramsdale Pharmacy, both on Elizabeth Street in Hobart.

Magistrate Willee convicted Mr Wheaton (of Roslyn Avenue Kingston, born 15 January 1948) after Mr Wheaton had denied the charge, given evidence and made submissions to the court.

The prosecution called four witnesses:- Craig Burgess (of Joe Kiss Electrical), Michael Searle of Aurora Energy Pty. Ltd., Michael Ramsdale (the owner of one premises) and Tony Millhouse of Electricity Standards and Safety.

Electricity Standards and Safety thanks Messrs Burgess, Searle and Ramsdale for their assistance and support in this regard.

As Mr Wheaton is an accredited building practitioner under the *Building Act 2000* the Director of Building Control has been informed of the prosecution to determine whether any action should be taken regarding his accreditation status.

#### 2. ELECTROCUTION RESULTING FROM CONTACT WITH A "LIVE" SPLIT CONDUIT

Energy Safe Victoria (ESV) issued the following message on 22 January 2007, "ESV seeks the support of the electrical industry – RECs, LEIWs and LEIs – to raise the awareness of property owners and other trades people to the dangers of electrical metallic split conduits which can be found in many older properties across the State".

It is ESV's view that due to age and possible modifications over the years, some split conduits have lost their earthing continuity and become "live".

Electricity Standards and Safety (ESS) hold the same view and have the same message for the Tasmanian electrical industry – electricians' and electrical contractors.

The ESV warning follows the death of a man while reblocking a house in Hawthorn in early January. He was working in the subfloor area directly beneath the lounge room when a metal tool he was using contacted a metal conduit that was live. It was the third fatality to be recorded in Victoria over the past few years involving "live" split conduits, and raises some very serious questions about the condition of ageing conduits still existing in many properties and what can be done to get them replaced.

The electrical industry is urged to encourage owners to re-wire their properties if the split conduits are showing any signs of deterioration. At the very least they should be urged to install safety switches as a stopgap measure until the re-wiring can take place.

The same warnings apply to a whole range of tradespeople – such as plumbers, gas fitters, building workers, air conditioning and security alarm installers, reblockers and home renovators to be extremely cautious if and when they encounter these conduits while going about their work.

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ESS's advice to them is not to touch the conduits and to arrange for a licensed electrical contractor to carry out appropriate tests to ensure they are not "live" before work starts. They should also advise their customers of the existence of the conduits and the danger they pose. For these other trades, the use of voltage meters is not recommended as the sole method to determine whether the conduits are "live" or not.

This incident is very similar to electrocutions in Tasmania over past years, the result of inadvertent contact with a "live" section of metal conduit.

- In one previous instance, an electrician was installing data cabling when he contacted a section of conduit which was not earthed and had become "live" when the insulation of the cables enclosed in a wall box attached to the conduit had been pierced by the fixing screw of a switch plate.
- In the other incident, a plumber contacted a "live" conduit when working in the ceiling space of a commercial premises.
- And in another "live" contact in a roof space, an electrician contacted exposed live parts in a junction box where the cover was missing.

Warnings about the dangers of "live" electrical metallic conduits were issued by ESS following each fatality.

The method of installing single insulated cables in a metal conduit can still be found in many older homes in the State. It was phased out in the 1950's. The conduits were manufactured of mild steel, formed almost into a complete circle without the seam being joined. The conduit was then painted black.

Conduit fittings include elbows, tees, junction boxes and couplings are connected to the conduit by clamping.

These conduit systems were designed to enclose single insulated cables and were required to be earthed. The original earthing continuity is dependent on paint being removed from the ends of the conduit prior to the conduit being inserted into the fittings and that the screws on the fittings are adequately tightened.

Unfortunately, as has become all too apparent, earthing continuity can be lost in the long term through deterioration or modification.

For further information contact Electricity Standards and Safety on (03) 6233 7831, Workplace Standards Tasmania Helpline on 1300 366 322 or email [wstinfo@justice.tas.gov.au](mailto:wstinfo@justice.tas.gov.au).

### 3. MEN CONNECTIONS - WHERE AND HOW

This article has been run previously in the bulletin. Recent events reminds us of the importance of the earthing system and the MEN connection, hence we have featured the article again.

The objective of "earthing" is to provide protection for persons against electric shock. An effective earthing system ensures that fault currents resulting from an electrical fault within equipment or installation will operate protective devices such as fuses and circuit breakers. Activation of the protective device must occur in a time that will reduce any potential rise on the earthing system to below "touch voltage"

The MEN system of earthing is widely accepted for its effectiveness as it combines:

- the earthing provided by the supply authority's distribution system, where the LV neutral conductor is earthed at its source, the star point of transformer and other points on the supply system (hence the term multiple earthed neutral), and
- the earthing provided at the consumers installation via the earth stake and water pipe which is connected to the supply main neutral conductor, through the MEN connection point at the main switchboard.

Where a switchboard is installed for a separate installation (ie outbuildings, detached or fire isolated) particular attention must be given to the earthing and MEN connection.

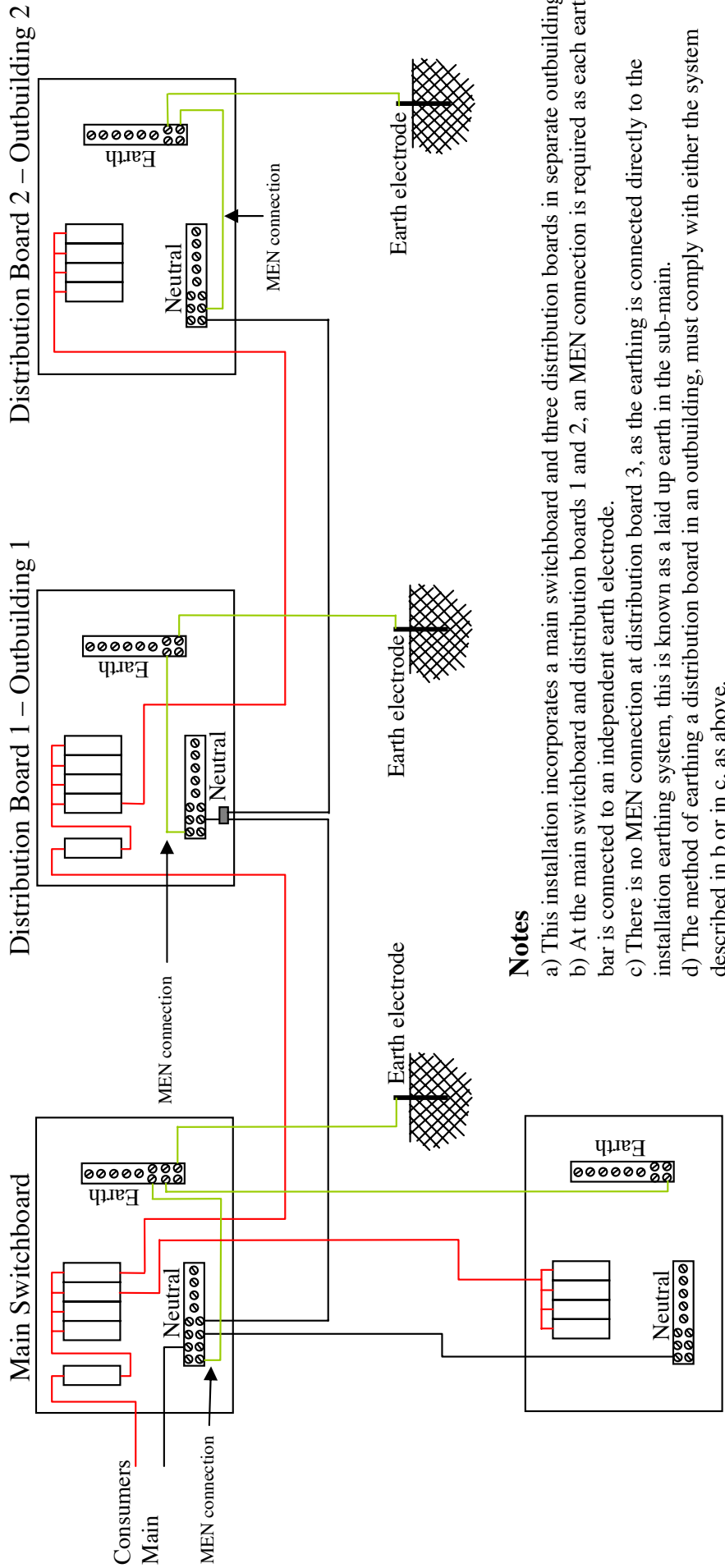
Investigation of recent serious electrical accidents found unsatisfactory earthing to be a contributing factor.

Inspections of electrical installations commonly find the MEN connection and/or the method of earthing is incorrect. Confusion still appears to exist over when and when not to connect the earthing conductor to the neutral conductor.

An illustration of a typical installation MEN system is shown on the following page.



# Multiple Earthed Neutral (MEN) System



## Notes

- a) This installation incorporates a main switchboard and three distribution boards in separate outbuildings.
- b) At the main switchboard and distribution boards 1 and 2, an MEN connection is required as each earth bar is connected to an independent earth electrode.
- c) There is no MEN connection at distribution board 3, as the earthing is connected directly to the installation earthing system, this is known as a laid up earth in the sub-main.
- d) The method of earthing a distribution board in an outbuilding, must comply with either the system described in b or in c, as above.
- e) The neutral conductor supplying distribution board 2, does not rely on a terminal at the distribution board in outbuilding 1 for its continuity.

## Wiring Rules Clauses (specific to this diagram)

- 1.4.62 Definition of the MEN system
- 5.5 Size of Earthing Conductors
- 5.6.3.1 Main Earthing Conductors
- 5.6.6 Earthing in Outbuildings and Detached Portions of an Electrical Installation

Distribution Board 3 – Outbuilding 3

#### 4. NEW LICENCE HOLDERS

Electricity Standards *and* Safety have recently licensed the following people to work as electricians in Tasmania. A majority of these electricians are recently graduated apprentices, we extend to them our congratulations.



#### Licence

Number	Name
A7280	Joshua Tierney
A7281	Nevin Garry Lenk
A7282	Jason Avon Forbes
A7283	Michael Tregenza
A7284	Andrew Eric Fogarty
A7285	Matthew Dance
A7286	Scott James Johnson
A7287	Mark Andrew King
A7288	Allan Vincent Thompson
A7289	Leigh Dale Richards
A7290	Trent Nicholas Gannon
A7291	Gregory Alan Essex
A7292	Craig Anthony Hawke
A7293	Bernard William Bruce
A7294	Samuel Haugland

A7295  
A7296  
A7297  
A7298  
A7299  
A7300  
A7301  
A7302  
A7303  
A7304  
A7305

Nick Blackberry  
James Neil Howard  
Travis Daniel Preece  
Scott Daniel Bester  
Simon John Deegan  
Robert William Tuxworth  
Matthew James West  
Paul Kevin Chopping  
Dale Kerrin Eder  
Nathan Donald Abrahams  
Rodney Maxwell Mills

#### 5. FREE! ELECTRICAL SAFETY TV COMMERCIALS ON DVD

Electricity Standards *and* Safety have a limited supply of copies of the DVD's to provide to electrical contractors, free of charge. Topics covered include installing safety switches and using licensed electrical workers.

Contractors interested in receiving a copy of the DVD please contact Jenny Cashin on 03 6233 7851.



- MIRABELLA CONNECT EXTENSION CORD
- AUTO WORK NIGHT WAND 19 LEDS
- NIGHT LIGHT CARTOON
- 'CHRISTMAS' BRAND 8M & 10M CONNECTABLE ROPELIGHTS
- 'CHRISTMAS MAGIC' 10M CONNECTABLE ROPELIGHTS
- MIELE S5980 & REVOLUTION POWER PLUS 5000 VACUUM CLEANERS
- MATCHMASTER PLUG IN TV SIGNAL AMPLIFIER
- TECO PORTABLE AIR CONDITIONER
- FILM PROCESSOR (MODEL NDT M ECO SUPPLIED BY GE INSPECTION TECHNOLOGIES GMBH)
- MIST BLOWER FANS (SUPPLIED BY HARDI AUSTRALIA PTY LTD)
- DAIKIN INVERTED SPLIT SYSTEM AIR CONDITIONER OUTDOOR UNITS
- ECHO PORT GLASS DOOR COMMERCIAL REFRIGERATOR RANGE
- MATCHMASTER PLUG IN TV SIGNAL AMPLIFIER

**For further recalls and precise product information, defect details and consumer action, visit the Product Recalls Australia website at [www.recalls.gov.au](http://www.recalls.gov.au)**



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