

FINDING INTO DEATH WITH INQUEST

Section 67 of the Coroners Act 2008

Court Reference: 801/2010



Inquest into the Death of David William Herbert Spence

Delivered on:: 9 March 2011

Delivered at Geelong

Hearing Dates: 7 February 2011

Findings of: Ronald Saines

Place of death/Suspected death: 46 Drysdale Avenue Hamlyn Heights

FINDING INTO DEATH WITH INQUEST

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In the Coroners Court of Victoria at Geelong

I Ronald Saines, Coroner having investigated the death of:

Details of deceased:

Surname:	Spence
First Name:	David William Herbert
Address:	46 Drysdale Avenue Hamlyn Heights

AND having held an inquest in relation to this death on 7 February 2011

at Geelong find that the identity of the deceased was David William Herbert Spence

and the death occurred on 27 February 2010

at 46 Drysdale Avenue Hamlyn Heights

from Electrocution in the following circumstances:

David Spence was born 5/10/1917 and was 92 years of age. He lived with his wife Valda at 46 Drysdale Avenue, Hamlyn Heights, a suburb of Geelong. They had lived there for about 22 years.

On Saturday 27/2/2010 he proceeded with a small job, being the placement of coaxial cable in the roof and wall cavity of the residence, to provide television reception for the kitchen. The task involved him entering the roof space of the building to lay the cable. He was not a licensed electrical contractor (electrician), although this task involved installation only of low voltage cable and did not require a licensed electrician to do it.

Access to the roof cavity was gained through a manhole located in the ceiling of the laundry, achieved with the use of an ordinary ladder.

It appears the house was constructed in the 1950's or 1960's. The wiring system, in the roof cavity, was the same as was fitted at the time of initial construction. That system being multiple or single strands of Vulcanized India Rubber wiring (V.I.R.) enclosed within a plain metal conduit. This metal conduit is known alternatively as plain metal conduit or split metal conduit. These materials were used generally for installing and insulating electrical services in the period of approximately 1920's to 1960's.

Plain metal conduit was manufactured from mild steel and was formed into a circle without joining at the seam. It was painted with black paint. Fittings included elbows, T-junctions, junction boxes and couplings which were connected to plain conduit lengths by clamping screws. Single or multiple insulated wiring cables ran inside the conduit.

Standard requirement was that the conduit system was earthed via a protective earthing conductor, usually located at the fusebox. However, earthing continuity was dependant upon there being metal to metal contact (without paint) at every joint of the conduit.

The use of VIR wiring and split metal conduit was replaced during the 1960's by use of Thermo Plastic Sheathed cabling (TPS). This cabling is still used now and comprises PVC insulated and PVC sheathed wiring.

Split metal conduit, with VIR wiring enclosed inside it, has a number of limitations with respect to long term safety issues. These include:

1. The metal conduit and fittings were invariably placed on top of roof timbers. Such that people who required access to the roof cavity would be likely to stand or walk on the conduit, or place various objects upon it. This produces a risk of separation of conduit from fittings which breaks the continuity of the earthing system.
2. Vulcanized India Rubber wiring is organic, such that it is subject to ordinary aging, whereupon the rubber cracks and loses its normal insulating property. Such that copper wires, with rubber insulation and woven cotton cloth to protect the rubber, became brittle over time. Movement or local trauma would be likely to cause older wiring to become exposed.
3. The combination of movement of metal conduit or fittings, and reduced insulating efficacy of VIR wiring creates an opportunity for live wiring to come into contact with unearthed metal conduit in surface and exposed locations in the roof cavity.

The consequent risks can readily be reduced, if not avoided, by the installation of Residual Current Devices (RCD's). These devices are a safety switch, designed to detect leakage of current to earth and function as a trip, or switch off device, to disconnect power supply in the event of detected current flow to earth. RCD's have been required since 2007 in new installation of lighting or power supplies, and also in renovations. They are notoriously sensitive and are invariably fitted to an existing fusebox or form a part of a new switchboard fitted by a qualified electrician.

There were no RCD's fitted at the Spence residence. Additionally, examination of the electrical fittings in the roof space revealed serious compromise of electrical safety there. In particular:

1. There were non-compliant connections. There was at least one location where a TPS cable was connected to VIR single insulated cable. The VIR cables were not enclosed in conduit. Additionally, an exhaust fan was connected to electricity supply with TPS cables and terminations of some of this wiring was not insulated, such that live wires were exposed.

These non complaint connections reduce safety levels, but are not relevant to the cause of death here.

2. Separation of split metal conduit from various fittings had occurred. At points of separation, VIR wiring was damaged and exposed, such that live wiring was exposed. Moreover, earthing continuity of the metal conduit was broken, such that the fuse at the main switchboard did not function as a circuit breaker, when current was caused to flow through energised metal conduit.
3. In the roof cavity immediately inside the manhole, there were a number of conduit separations and areas where there was energised metallic conduit. These separations, and damage to VIR wiring, would most probably, be attributable to human "traffic" or activities relating to maintenance or other access reasons.

Mr Spence was most likely unaware of the greatly reduced safety state of the roof wiring. He did not turn off the power supply to the building before entering the roof cavity. Unless a qualified electrician is undertaking significant electrical works, turning off the power supply would generally be unusual. Nevertheless, it would also have avoided his exposure to energised wiring or conduit.

Valda Spence was in the house when he went up into the roof space. She heard him moving around at first. After a short time she could no longer hear activity. She checked the manhole and saw him lying partly across it. When she was unable to produce any response from him, she called emergency services.

He was found in close proximity to a section of live (energised) metal conduit, indeed his right hand was upon part of it. His forehead was also close to another section of conduit. Having regard to obvious burn marks on his right hand and forehead, it is clear he was electrocuted when he came into contact with an energized section of conduit, concurrently with contacting an earthed section. This caused full current to flow through him, causing death almost immediately.

Given that there are thousands of homes in the Geelong area, and many more across Victoria, constructed before the 1960's, the risks to public safety which are illustrated by the circumstances of David Spence's death, warrant comment.

It is true that many such homes have been rewired or renovated, such that more modern wiring and safe electrical devices are now fitted. But identification of which buildings are safe, from those which have compromised safety, is achieved most reliably by inspection.

Energy Safe Victoria (ESV) is an authority created under the Electricity Safety Act 1998. It has a wide range of powers and obligations under that Act, and also under Regulations made pursuant to it. These are not limited to, but include, registration and licensing of contractors and workers, supervision of electrical installation work, also enforcement procedures and obligations including prosecuting powers and obligations.

In practice, ESV undertakes a range of information services, informing contractors, workers, inspectors, electricity suppliers and consumers of relevant information. ESV has a regular publication, sent to registered electricians and other stakeholders in the energy service sector and also maintains an extensive website. It also provides advice to government.

Two inspectors from ESV attended the Spence residence on the day of his death. They assisted with reports and oral testimony in this inquest.

ESV has a number of existing practices and oversees a number of regulatory requirements relevant to the risks identified in this inquest. These include the following:

- 1 Publications are generally distributed quarterly. In 1995, 2000, 2007 and 2010 the "Energysafe" quarterly brochure reminded readers of the risks and appropriate remedial strategies which arise in buildings constructed before the 1960's.
- 2 In the event a licensed electrician observes wiring or electrical installations which present safety risks, ESV has procedures which seek to deal with it. If a property owner is not prepared to fund adequate remedial works, ESV will direct written notice to the owner and to ESV. ESV will then contact the owner with further advice and warnings. Authority to disconnect power supply is not available to ESV but ESV may contact the supplier who may in turn, threaten to, or actually disconnect supply until remedial works are completed. It is unclear how frequently these procedures are applied, although it does appear that actual disconnection is rare. However, the obligations and penalties which are created by S.43 of the Electricity Safety Act 1998, are applicable.

S. 43 provides, in respect of safety of electrical installations

- (1) A person must not install any electrical equipment which the person knows or should reasonably be expected to know is unsafe or will be unsafe if connected to an electricity supply.

- (2) The occupier of any premises in which there is any unsafe electrical equipment must—
 - (a) cause the electrical equipment to be removed from the premises or to be made safe; or
 - (b) in the case of electrical equipment forming part of an electrical installation, notify the owner of the premises of the unsafe electrical installation.
- (3) An owner of premises who is notified under subsection (2) must cause the electrical installation to be removed from the premises or to be made safe.
- (4) A person carrying out electrical installation work must ensure that—
 - (a) all electrical circuits or electrical equipment handled in the course of that work are disconnected from the electricity supply; or
 - (b) adequate precautions are taken to prevent electric shock or other injury in the handling of electrical circuits or electrical equipment in the course of that work.

Penalties are provided in the section, in the event of non compliance

- 3 ESV also is required to oversee compliance with Regulations made under the Act, which include the Electricity Safety (Installations) Regulations 2009, which include obligations for the installation of RCD's and also maintenance of complying wiring systems.

There are several strategies that are not applied by ESV. Broadly speaking, those strategies would not so much relate to identified risks, but rather to the process of inspection and risk identification. These include:

- (1) Mandated regular inspections. Evidence before this inquest was that there is no system of regular inspection by an independent person, in Victoria, or indeed in Australia. There was a suggestion that Australian Standards, the corporation which undertakes publication and benchmarking across a broad range of products, services and constructions in Australia, are presently or shortly to consider incorporating regular inspections into relevant electrical standards but the evidence of this went little further.
- (2) Mandated electrical safety inspections upon sale or transfer of property. It appears this is required at present in Queensland and possibly other states in Australia. Evidence before this inquiry was that this was considered by the Victorian government in or about 2000 but was not adopted as policy or law.
- (3) A Home Safety Inspection program was announced by ESV in approximately 2003/04. It was website based and entitled consumers to obtain an information kit, which included contact details for licensed inspectors and appropriate fees. It had some public uptake but has not been further promoted.

It is clear from the evidence before this inquest that greater regulation and owner obligation, aimed to increase safety, would result in increased cost to landowners. Replacement of all VIR wiring and split metallic conduit in all buildings in Victoria would impose unsustainable costs upon community and families. In circumstances where only a small percentage of wiring systems involving VIR wiring and split metallic conduit would presently have safety risks, it may be a very high price to pay for some increased safety. I would accept this debate is one which ordinarily is best conducted within political and government processes.

Additionally, were the Parliament or ESV to increase obligations of electricians generally to require initial reporting and independent supervision of safety standards beyond the current legislative and regulatory regime, the relationship the electrician has with a consumer becomes less one of a serviceman, and more one of, or in the nature of, policeman. This has the potential of increasing self help or reliance upon unqualified or less scrupulous tradesmen, which may be self defeating. There is some merit in the current situation with respect to ordinary professional advice regarding any safety risks at first instance, and subsequent opportunity for action and enforcement if initial advice is refused or ignored at risk to safety.

However, having regard to the entitlement of this Court to make comment upon matters relating to public health and safety, I intend to make a number of recommendations.

***RECOMMENDATIONS:**

Pursuant to section 72(2) of the Coroners Act 2008, I make the following recommendation(s) connected with the death:

1. ESV have an opportunity not only via its own publications, but also via influence or involvement in apprentice education for review of educational material at tradeschool, in respect of the risks and corrective procedures identified in these findings.

I would recommend that ESV take every opportunity to increase emphasis upon safety risks with ageing and old electrical connections and fittings so the prospect of avoiding this sort of risk and death may be reduced by involvement in trade education and its own publications, online and in print.

2. ESV should also review its website and publication strategies, with a view to placing further emphasis upon risks to public health and safety, especially to the ordinary home owner or occupier which arise in circumstances illustrated by Mr Spence's death. Also review its presentation of, and commitment to, the Home Safety Inspection Program.

3. It is a prudent and sensible step for any person who may be considering the purchase of a home, either constructed before the 1960's, or at all, to consider a pre-purchase electrical inspection. Such steps are not uncommon with retention of builders or engineers to advise of structural risks and maintenance or repair costs which may come with a property. Similar identification of safety and costs risks with respect to electrical safety should be considered by purchasers and those who advise them.

To the extent solicitors are involved in advising purchasers of homes and buildings, regarding proper enquiries upon, or disclosure by Vendors, any practice, either undertaken informally within the legal profession, or otherwise by additional formal legal procedure, should be considered.

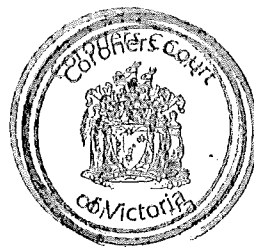
In this context, I recommend that any Conveyancing Committee or Property Law Group within the Law Institute of Victoria, and ESV, give consideration to the merits of Vendor Certificates of electrical safety, and/or regular procedures for enquiry or investigation of electrical safety by purchasers of specific (or all) buildings and/or for other review strategies upon sale and purchase of relevant buildings. To minimize or avoid risks to health and safety as occurred here.

4. Community awareness of the existence and type of risks to safety identified in respect of the death of David Spence by any means, may well assist others in avoiding such risks, and/or in the appreciation of them resulting in remedial action at an earlier date.

Accordingly, magazines or other publications, also home renovation publications, as well as weekend or daily magazine or newspaper publication of these findings regarding the avoidable circumstances of this death may well also assist in wider public awareness of risks.



R. SAINES
Coroner



9th March 2011

DISTRIBUTION

Energy Safe Victoria

Coroner's Prevention Unit, Melbourne

Law Institute of Victoria

Minister for Energy & Resources, Michael O'Brien MP

Selected print media outlets