Electrical
Safety Week

eso.qld.gov.au

Electrical contractor safety webinar

Queensland Government

MC welcome and ESO update

Donna Heelan
Executive Director
Electrical Safety Office

Arc flash hazard management

Michael Gibson
Director of Field Services
Electrical Safety Office

Arc flash hazard management

Michael Gibson, Electrical Safety Office

Electrical Safety Office
electricalsafety.qld.gov.au

Queensland Government

Working on or near energised parts is hazardous

Electrical workers conducting electrical work are at the greatest risk of exposure to an arc flash incident.

The risk includes:

- Significant burn injuries from exposure to arc flash
- Shock or electrocution
- Fire

Working on or near energised parts is hazardous

If all electrical work could be carried out in a deenergised state there would be no risk of arc flash.

However this is not always practicable, electrical workers work on or near energised parts, such as:

- Proving a part is de-energised after isolation
- Testing and fault finding
- Racking out circuit breakers and switching/operating equipment

Arc flash injuries

- Over the past 14 months, there have been more than 10 arc flash serious electrical incidents within Queensland.
- A review of these incidents has identified that on a number of occasions workers have conducted tasks that are outside established procedures.
- Electrical workers continue to place themselves at risk of an arc flash injury when working near live parts without controlling the risk.

Identifying the causal factors of arc flash incidents

Identifying the causal factors of serious electrical incidents is a priority for the ESO.

The Office of Industrial Relations (OIR) sponsored an Arc Flash Human Factors Study.

Arc flash research findings

The findings from this research, released in October 2021, are covered across three themes:

- arc flash work practices
- the psychological process of arc flash safety behaviour
- arc flash risk management practices.

Six recommendations for future practice emerged.

Arc flash study – key recommendations

- Develop an arc flash awareness and education campaign targeting multiple levels of the work system.
- Review existing electrical licensing testing and skills maintenance practices for arc flash prevention.
- Review curricula for apprentice electricians and consider industry specialisations that include arc flash specific information.

Arc flash study – key recommendations

- Ensure the reviewed Electrical Safety Act and Regulations are supported by a worker-level awareness campaign that focusses on working on and near energised equipment.
- Review of the compliance, monitoring and enforcement policy surrounding electrical safety incidents, with a focus on how arc flash events are handled after being reported, and how industry reporting can be encouraged.
- Consider relationships and networks between regulators, associations, and unions to capture and disseminate compelling electrical safety stories across different industries and settings.

Arc Flash Working Group

- To address the recommendations of the Study, the ESO is establishing an Arc Flash Working Group.
- Developing practical actions to address the causal factors of arc flash incidents is a primary initiative of the ESO.
- The Arc Flash Working Group will collaborate directly with a cross-section of stakeholders (electrical industry experts and safety representatives) with the aim of improving industry awareness about the risks of electrical arc flash.

More information

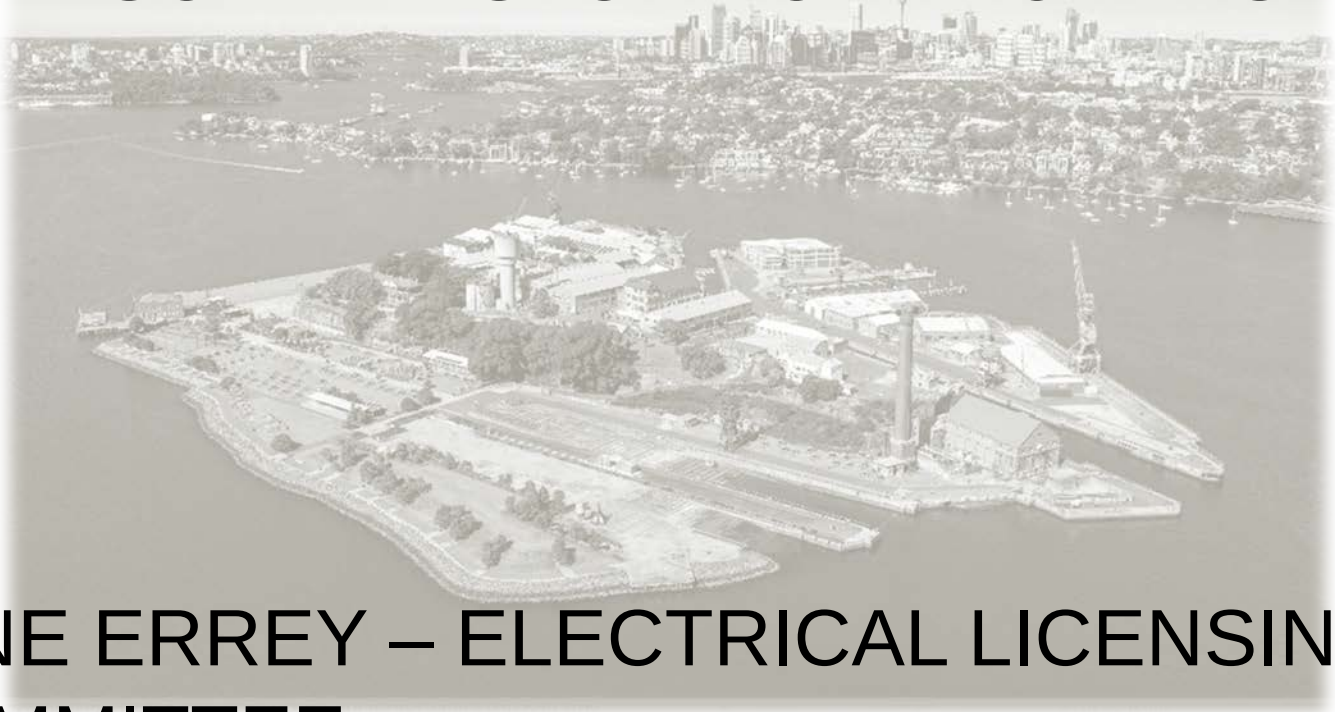
Contact the Electrical Safety Office

- electricalsafety.qld.gov.au
- 1300 362 128
- Facebook.com/electricalsafetyoffice

Arc flash case study

Jane Errey
Senior Electrical Engineer and Director
SPA Consulting (Qld) Pty Ltd

FROM DOCKYARD TO TODAY – A PERSONAL HISTORY OF ARC FLASH



JANE ERREY – ELECTRICAL LICENSING COMMITTEE

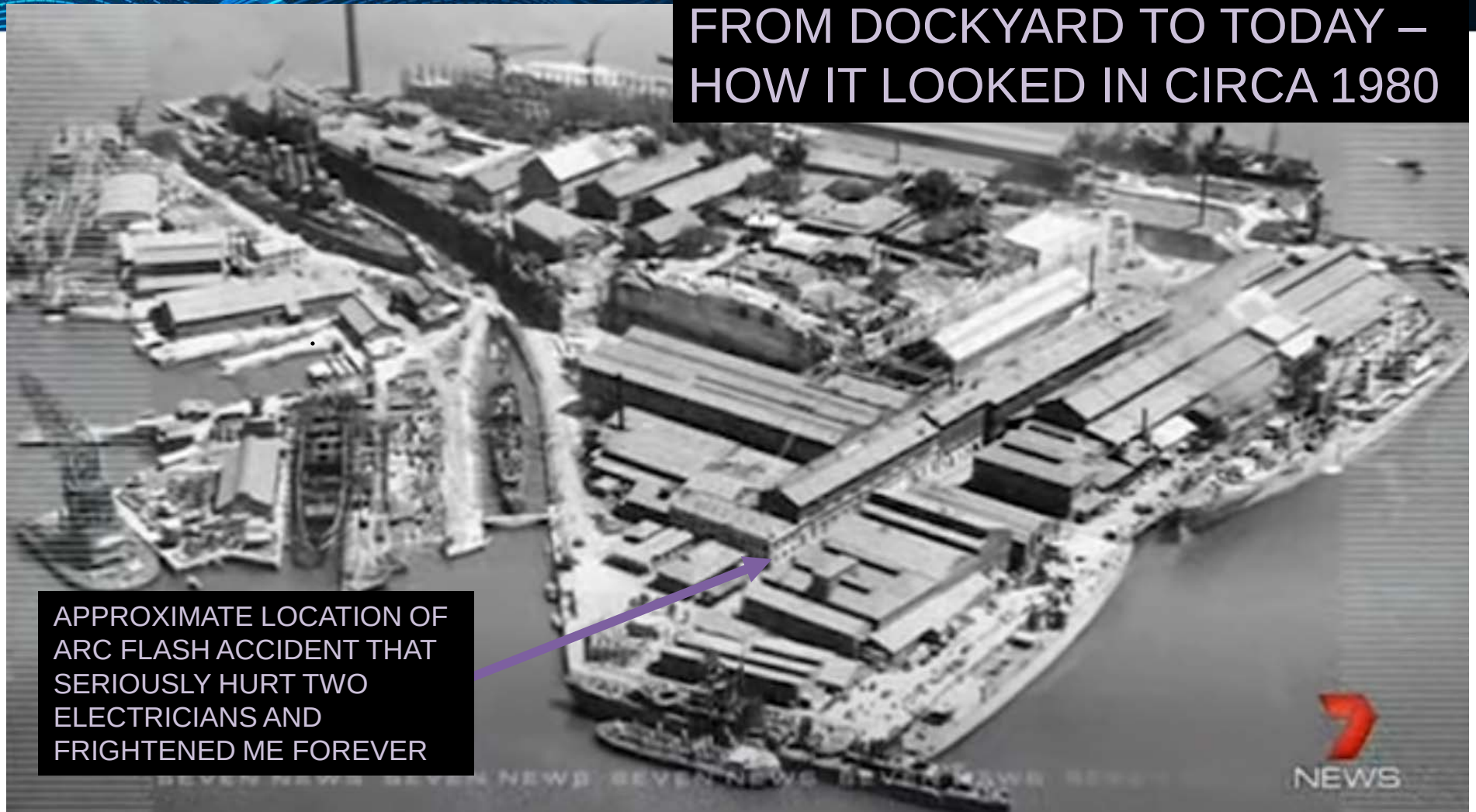
FROM DOCKYARD TO TODAY – THE FIRST FEMALE APPRENTICES

FIRST YEAR APPRENTICE

Final year electrical fitter mechanic apprentice, Jane Errey, checks the control gear for the alternator on board Titan, Vickers Cockatoo Dockyard's floating dockyard crane.

FINAL YEAR APPRENTICE

FROM DOCKYARD TO TODAY – HOW IT LOOKED IN CIRCA 1980



FROM DOCKYARD TO TODAY

FROM DOCKYARD TO TODAY

THIS IS WHAT THE WALL INSIDE THE SUBSTATION ROOM LOOKED LIKE –

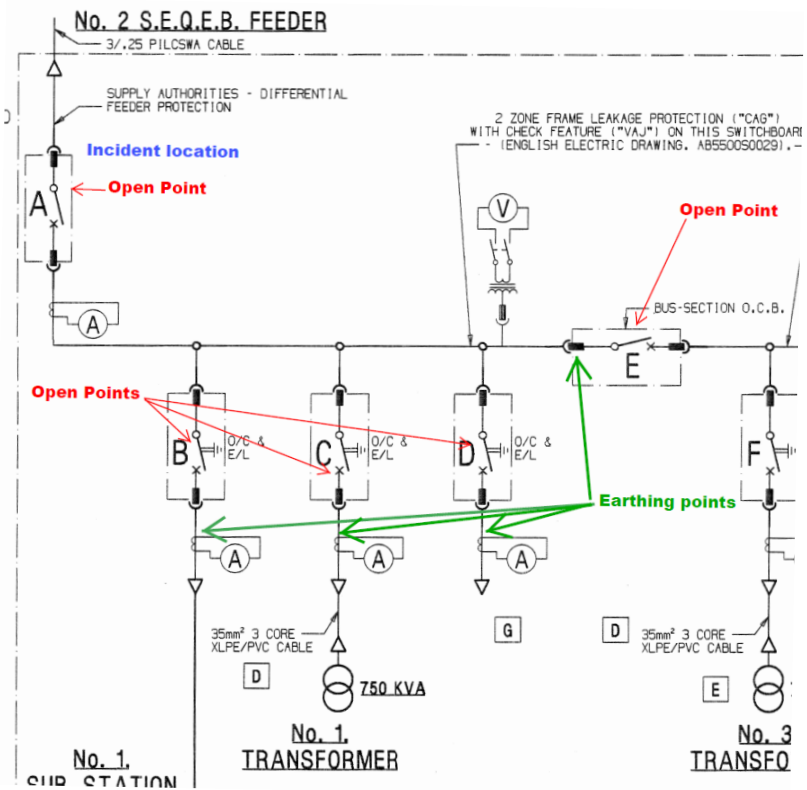
THE SHAPE OF TWO PEOPLE SILHOETTED IN THE ASH MARKS

NEXT DAY AT THE HOSPITAL

UNRECOGNISABLE

FROM DOCKYARD TO TODAY – FAST FORWARD TO 2016

RESULTING IN AN APPRENTICE BADLY BURNT



FROM DOCKYARD TO TODAY – WHAT I NOW KNOW ABOUT FAULT CURRENT

Transformer kVA	% Impedance	Max Operating Current (A)	Max Fault Current (A)
50	3.3	69.5602734	2107.887073
100	4	139.1205468	3478.01367
200	4	278.2410936	6956.02734
315	4	438.2297224	10955.74306
500	4	695.602734	17390.06835
1000	5	1391.205468	27824.10936

FROM DOCKYARD TO TODAY – RECENTLY

Arc flash safety – Mark's story | WorkSafe.qld.gov.au

Explosion at Queensland's JBS abattoir hospitalises five

By Ellie Sibson and Kristian Silva

Posted Sat 8 Apr 2017 at 11:09am, updated Sat 8 Apr 2017 at 12:28pm

MORAL TO THE STORY – ISOLATE UPSTREAM

Working with asbestos in the electrical industry

John Snooks

Principal Advisor (Asbestos)

Workplace Health and Safety Queensland

Selected definitions

Asbestos-related work means:

- work involving asbestos (other than **asbestos removal work** to which Part 8.7 applies) that is permitted under the exceptions set out in regulation 419(3), (4) and (5).

Friable asbestos

- Loosely bound or sprayed on material that when disturbed in a destructive manner could become a respirable material. Easy pulverised by hand pressure.

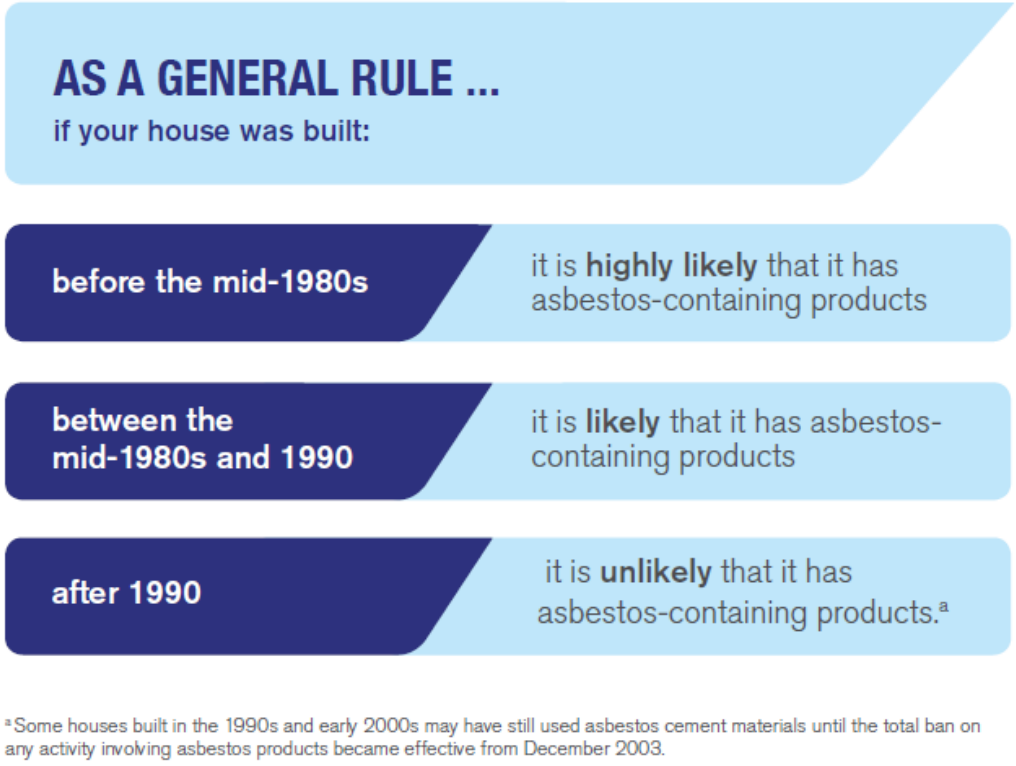
Non-friable asbestos

- Not friable. Bound in a matrix (cement, vinyl).

Why was asbestos used in building products?

- It is a naturally-occurring mineral and easily acquired.
- It has great flexibility.
- It has tensile strength.
- It has the ability to insulate from heat.
- It is nonconductive to electricity, chemically inert.
- It is affordable.

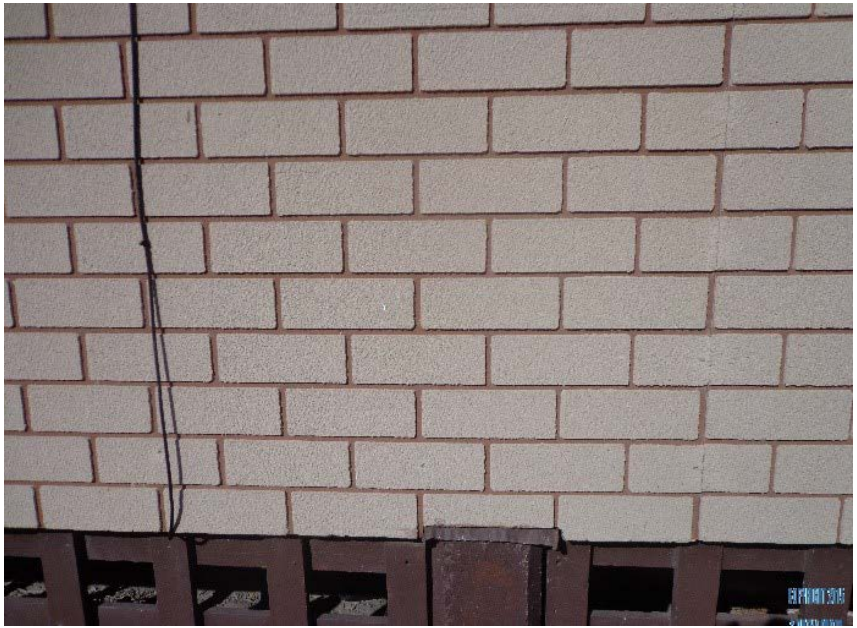
Assuming asbestos is present

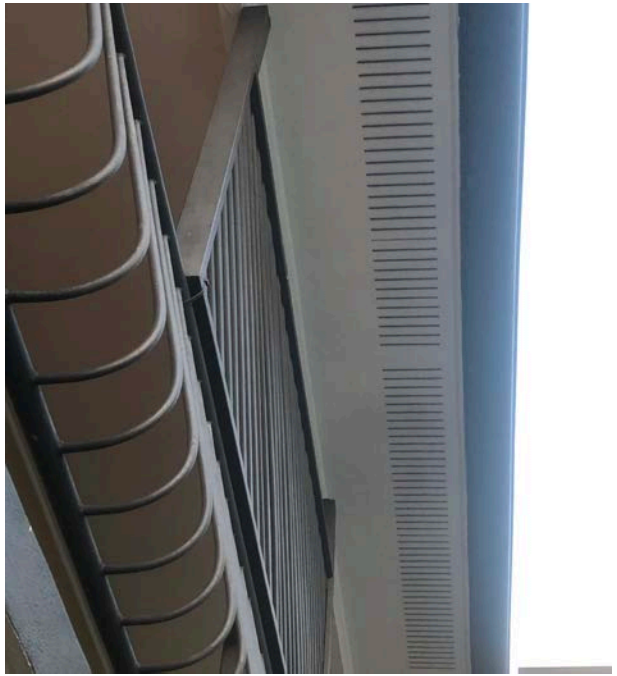


Criteria for assuming asbestos

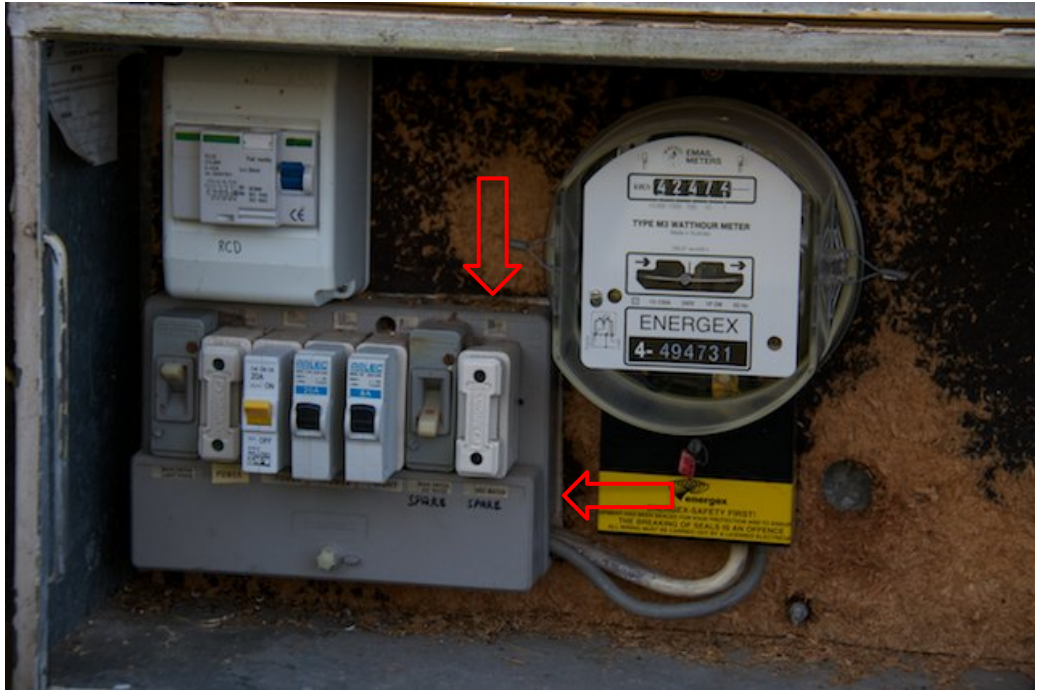
- The age of building.
- The era renovation activity occurred.
- Manufacturers labels.
- The look and feel of product:
  - dimple effect
  - protruding nails
  - cover strips.

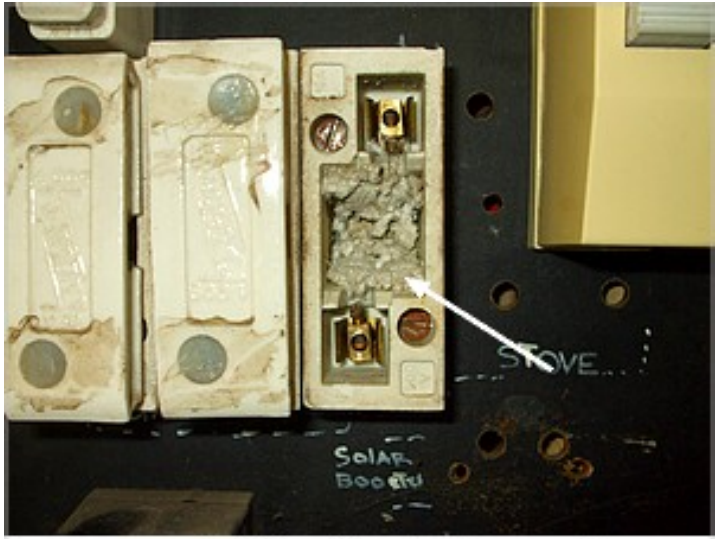
Uses and applications of common ACM



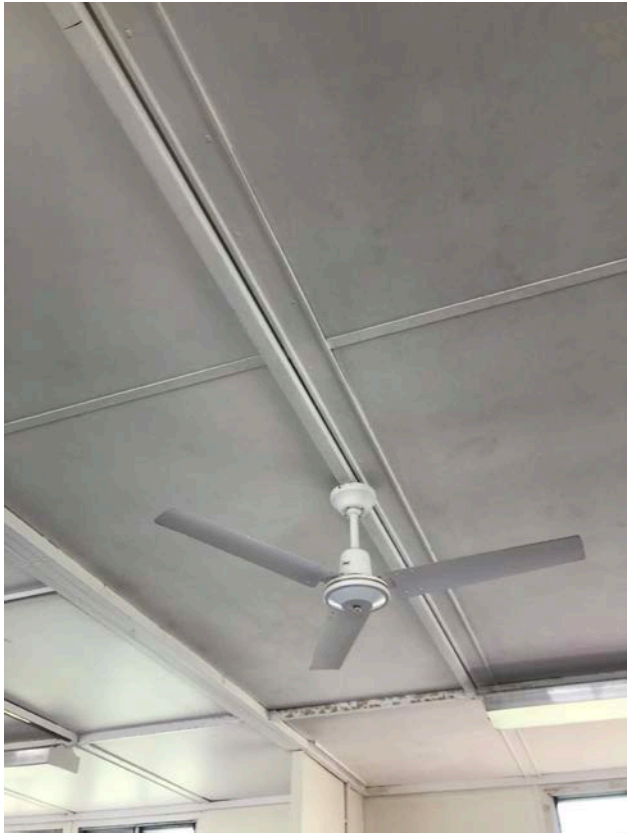


DO NOT REMOVE
CAUTION





Loose or friable asbestos is sometimes found in old meterbox 3 phase fuses. This is white or Chrysotile asbestos packed into the fuseholder.



Low density Board (LDB)

- LDB is a friable asbestos containing material.
- It is a lightly compressed board containing asbestos fibres in a calcium silicate plaster (not like normal Fibro sheeting which had a cement matrix).
- It is sometimes referred to as asbestos insulating board (AIB).
- LDB can contain up to 70 per cent asbestos fibres by volume. In comparison, asbestos cement sheeting typically contains between 5 to 20 per cent asbestos.

Low density Board (LDB)

LDB is up to 70 per cent pure asbestos (compared to typical asbestos cement fibro that contains approximately 20 per cent asbestos).

Low density Board (LDB)

Low Density Board

Asbestos cement fibro board

Maintenance and service work on LDB

The following maintenance and service work on LDB is permitted when done in accordance with LDB approved methods that were approved by Workplace Health and Safety Queensland (WHSQ):

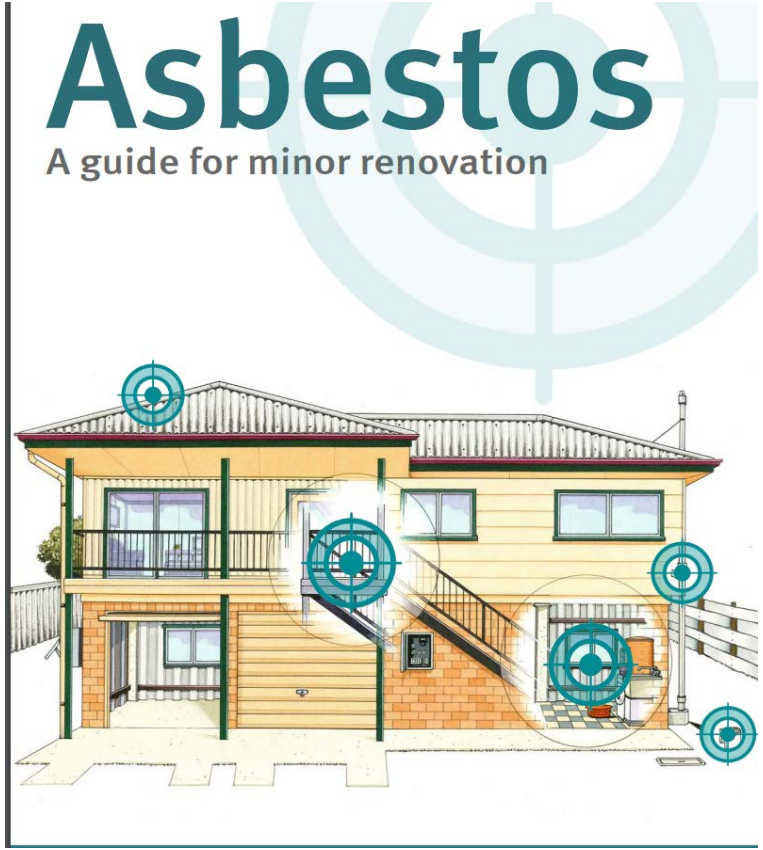
- Minor repairs and minor damage to low density asbestos fibre board (PDF, 234 KB)
- Painting undamaged low density asbestos fibre board (PDF, 189 KB)
- Drilling holes up to 30mm in diameter into low density asbestos fibre board (PDF, 203 KB)
- Temporarily moving a low density asbestos fibre board ceiling tile (PDF, 218 KB)
- Installing or removing fixtures or fittings to low density asbestos fibre board (PDF, 205 KB).

The maintenance and service work described in the LDB approved methods does not have to be performed by a class A licensed asbestos removalist . However, workers must be familiar with the LDB approved methods and be competent to perform the work.

Drilling into ACM

Publications

- Asbestos - A Guide for householders and the general public
- www.asbestos.qld.gov.au



The Resilience Shield

Tim Curtis

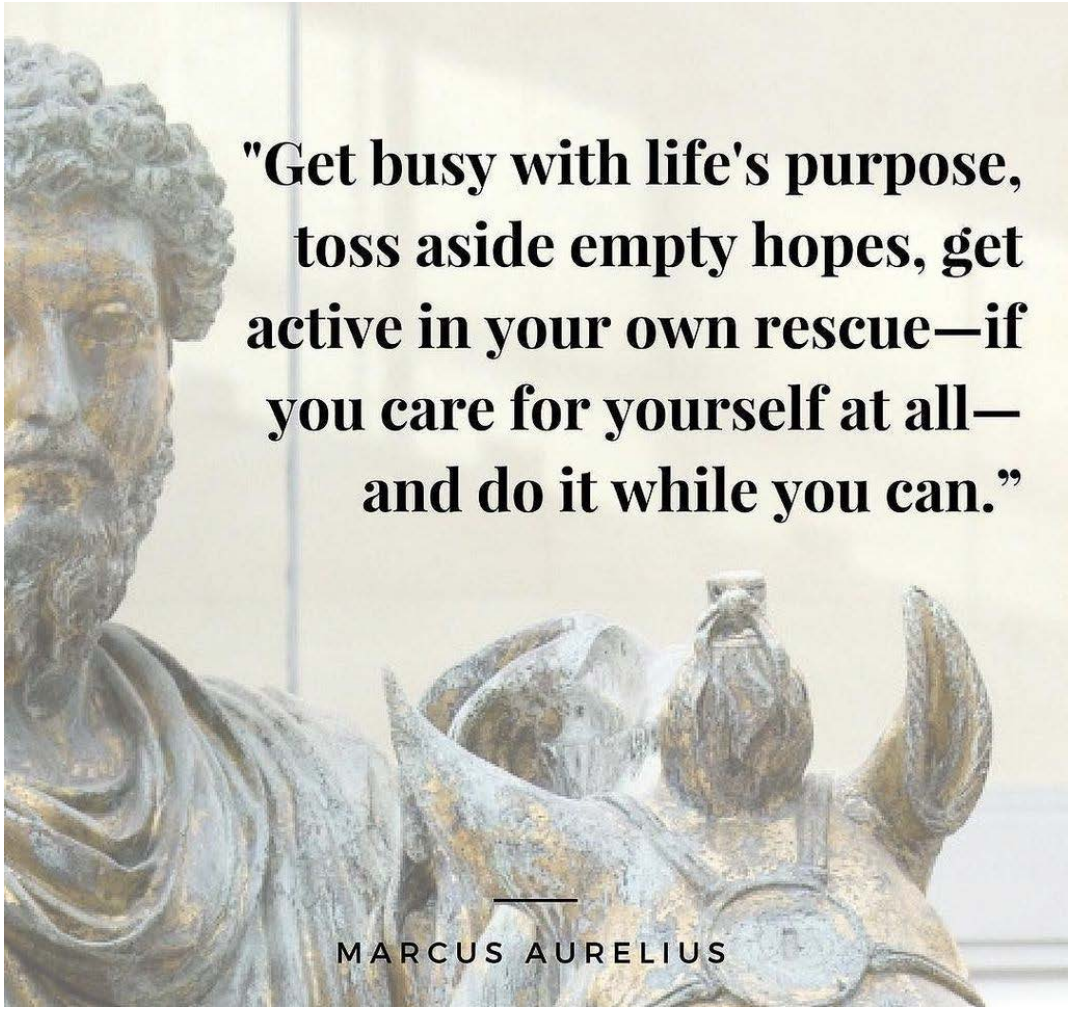
Director and Author of The Resilience Shield

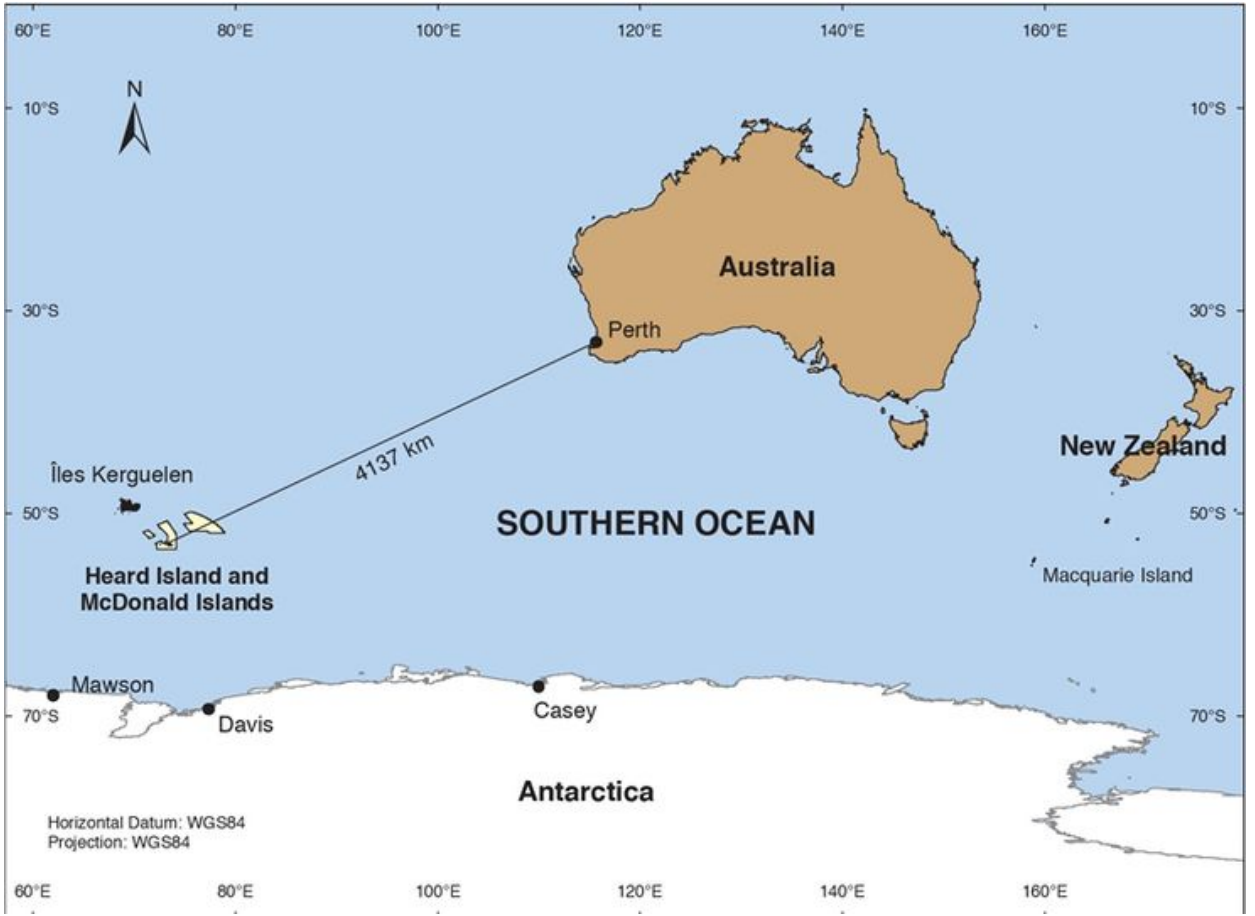
The Resilience Shield

Dr Dan Pronk
Ben Pronk DSC
Tim Curtis

Electrical Contractor Safety

Queensland Government
WorkSafe.qld.gov.au


"Get busy with life's purpose, toss aside empty hopes, get active in your own rescue—if you care for yourself at all— and do it while you can."
MARCUS AURELIUS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Îles Kerguelen
Heard Island and
McDonald Islands
SOUTHERN OCEAN
New Zealand
Macquarie Island
Mawson
Davis
Casey
Antarctica
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Projection: WGS84

SOUTHERN CHAMPION
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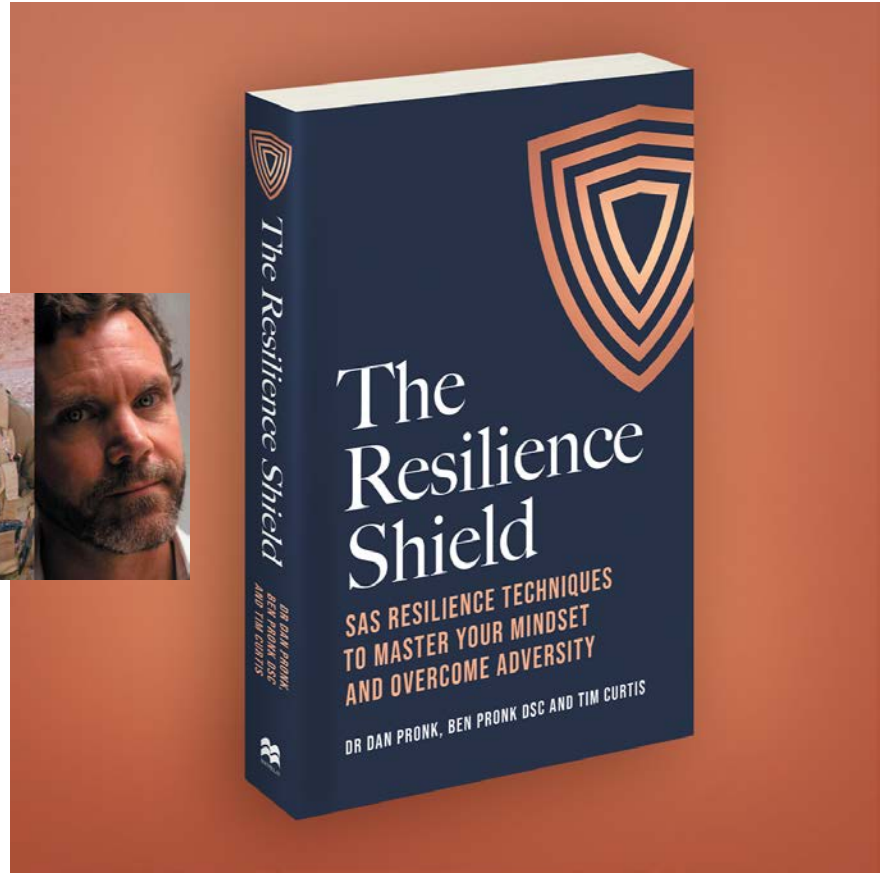
VHGI

AUSTRALIAN
GEOGRAPHIC


The Resilience Shield
SAS RESILIENCE TECHNIQUES TO MASTER YOUR MINDSET AND OVERCOME ADVERSITY
DR DAN PRONK, BEN PRONK DSC AND TIM CURTIS

Innate

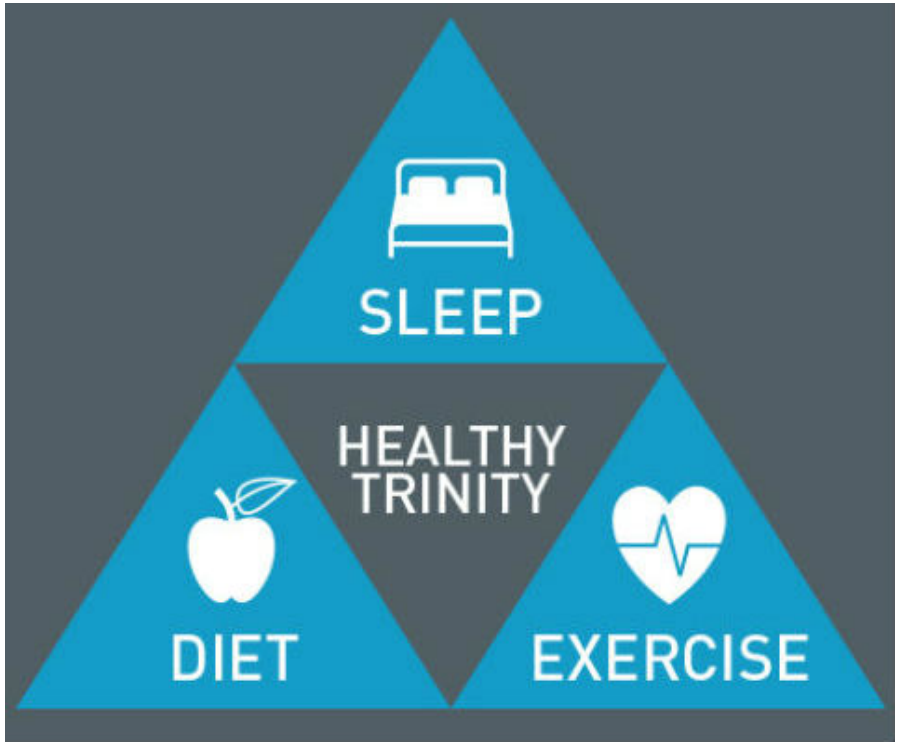
Mind

Body

Social

Professional Adaptation

The Body Layer



The Body Layer

Doctors on long shifts 'drunk with fatigue'

Doctors are concerned that working shifts of more than 12 hours could result in their

GETTY IMAGES

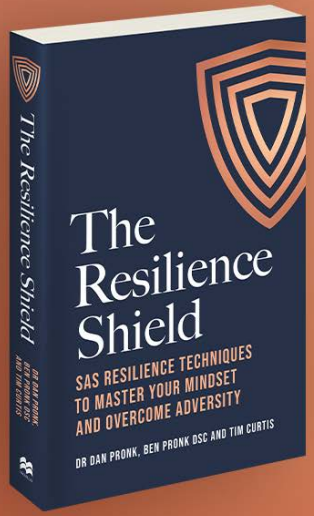
Doctors are becoming so tired on lengthy shifts that it is as if they are drunk, they have claimed.

“Gut Feel”

"Deliberately seek the company of people who influence you to think and act on building the life you desire"

- Napoleon Hill

LUCY



The Resilience Shield

DR DAN PRONK, BEN PRONK DSC AND TIM CURTIS

www.resilienceshield.com

Where to get help and support?

Lifeline	13 11 14	www.lifeline.org.au
Beyond Blue	130 22 46 36	www.beyondblue.org.au
Black Dog Institute		www.blackdoginstitute.org.au
Suicide Call Back Service	1300 659 467	www.suicidecallbackservice.org.au
SANE Australia	1800 18 72 63	www.sane.org
Open Minds	1300 673 664	www.openminds.org.au

Panel session (Q&A)

Donna, Jane, Michael, John and Tim

Thank you for joining us!

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