



# Trevor Kempster

## Trevor Kempster Consultancy Services

PRESENTED BY:





Meeting Compliance with the  
DTS Requirements of the NCC  
& AS3959-2018 for  
Construction of Buildings in  
Flame Zone Designated Areas

# Grenfell Tower Fire 14<sup>th</sup> of June 2017

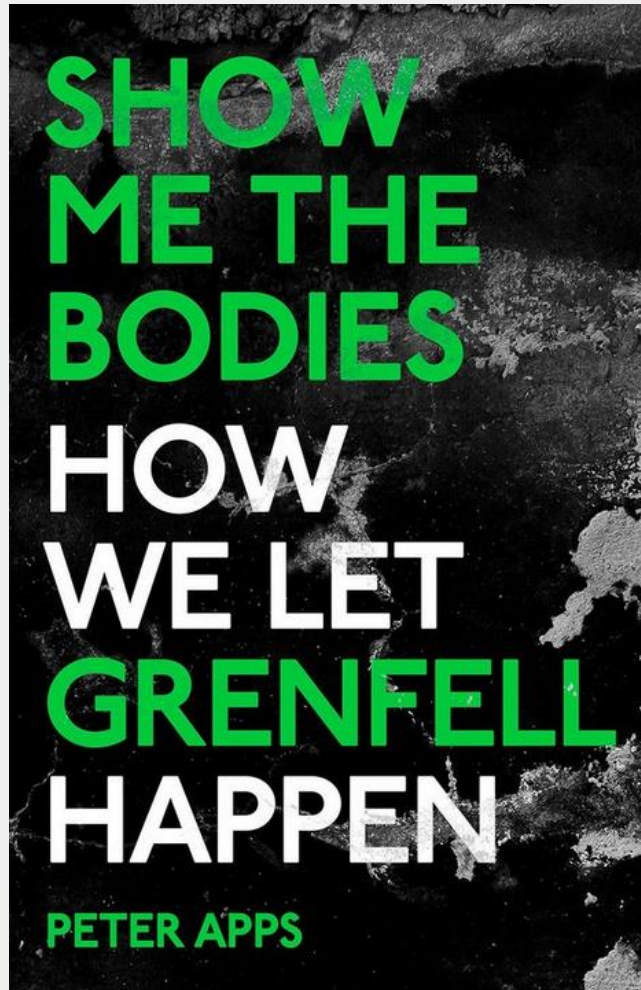


**72 People lost their lives**

**72 Bereaved Families & Groups of friends, All Wanting Answers & someone to blame.**

**This was also the biggest wake up call to Industry Stakeholders around the World to up their game, for Compliance & Fire Protection**

# Show Me The Bodies How We Let Grenfell Happen



‘Working from painstaking daily reporting from the inquiry, alongside extensive interviews with the bereaved and the survivors of the Grenfell atrocity, Apps has written a concise, devastatingly detailed and upsetting book... From architects to politicians, all decision makers should read Show Me the Bodies’

**Emma Dent Coad, former MP for Kensington**

‘Compelling, rigorous, utterly forensic and so very needed. This book has to be the moment that things change’

**Lucy Easthope, author of When the Dust Settles**

# Some of the many quotes from the book

“Following the Lakanal House fire in July 2009, the government tasked BRE to investigate what had happened. Blocks of flats should resist the spread of flame, allowing the firefighters ample time to extinguish the fire before it uncontrollably spread. Either the building did not comply with regulations, or the regulations were not sufficient, but something had gone wrong. But within government, it appears minds were already made up. On 14 July – before any report from the BRE – Brian Martin, the former joiner who was now the civil servant effectively in charge of fire safety regulations, emailed a fire engineer who had enquired about the blaze to tell him: ‘Based on the snippets of info I’ve had so far, I don’t think there’s any need for changes to [Approved Document B]’”

“The UK government's failure to tighten the class ‘0’ rating meant that cheaper panels could stay on the market. The pure polyethylene was around 2 to 3 Pounds cheaper per m2.”

“What to make of Mr Martin’s actions in the eighteen years before Grenfell, when he failed again and again to correct the fatal flaw in **Approved Document B?**” (*Demo*)

“Throughout the government relied on the fact that deaths in fires were falling to justify its failure to tighten fire safety rules. This is said to have been expressed by officials with the following phrase: ‘Show me the bodies.’\* There were simply not enough deaths to justify new restrictions on businesses. On the 14 June 2017, our government got what they had asked for.”

“The Grenfell Tower fire **killed seventy-two people**, including **18 children**. It ripped families apart, traumatised an entire community, destroyed 129 homes and caused damage that, for many involved, can never be repaired.”

## **UK Government PLC could have set higher standards.**

“Political and economic choices saw us adopt lower standards than Germany and others around the EU. We wanted to remove barriers to doing business, and doing so became a market where dangerously combustible cladding could be sold. Equally Arconic (*the suppliers of the Class ‘0’ compliant cladding used on Grenfell*) cannot blame the UK governments indifference to fire safety. It had its testing from 2004 which demonstrated the risks, and all the warnings from senior members of the company. But corporate interest took precedence over human morality.”

“An employee at one insulation manufacturer described a fire test on a system containing its product as ‘a raging inferno’ in 2007, but buried the testing and marketed it specifically for use on high-rise buildings. When its fire performance was questioned, one manager said those raising issues could ‘go f\*\*k themselves’.

Senior figures at a cladding manufacturer exchanged emails internally saying the company was in the “know” about its product’s poor performance, but told its salespeople to keep its true performance ‘VERY CONFIDENTIAL!!!’

**“Both those materials would end up on Grenfell Tower”**



# Corporations' ability to Lobby Government

“As Sky News reported a few months after Grenfell, the UK lobbying arm of the plastic insulation industry **boasted** of its ability to ‘influence UK and local government, specifying authorities, relevant approval and certification bodies’ and having ‘high level involvement in the drafting and regular revision of British and European standards [and] the Building Regulations’. Rob Warren, a former technical director at Celotex, told a trade publication in 2015 that the regulatory change was ‘the greatest driver of plastic insulation sales’.”

*Maybe I'm being a little naïve, but I hope this hasn't been happening in Australia.*

“On the 14<sup>th</sup> June 2017, a 24-storey block of flats went up in flames. The fire climbed up cladding as flammable as solid petrol. Fire doors failed to self-close. No alarm rang out to warn sleeping residents. As smoke seeped into their homes, all were told to ‘stay put’. Many did – and they died.”

“Harrowing 999 calls, which would later be played at a mammoth public inquest, recorded the rising panic of those trapped as smoke filled their burning flats. The fire ripped through the poorly maintained building. Fire doors failed. Eventually, the single staircase filled up with pitch-dark, choking smoke. In just one bathroom, **two mothers and their three children died**, including a **baby** born just weeks before.”

*‘Show Me the Bodies will never leave the mind of anyone who reads it. The tragedy is that those that should read it probably won’t.’*


**Lynsey Hanley, Guardian.**



# Lacrosse Cladding Fire 24<sup>th</sup> November 2014

**Thankfully, nobody died.**

Not because we build or regulate better than the UK. But because we were lucky for several reasons.  
*(for justification of this statement – please contact Stephen Kip)*



# Comparing Lacrosse with Grenfell is like comparing apples with bananas.

## Australia

ACP with any % of PE Core & plastic thermal insulation products haven't been compliant for use on/in Any external walls of buildings of 3 story's and above since BCA1988. If ACP is used on the outside of a building to complete the envelope of the external wall system. It is **not** an attachment; it is part of the external wall **SYSTEM**.

## United Kingdom

The British Building Standard & Approved Document B (*a **Non mandatory document***) **Allowed** ACPs with 100% PE and Plastic thermal Insulation to be used **compliantly** on All high-rise buildings.

# Black Saturday bushfires 7<sup>th</sup> of February 2009



173 People lost their lives.

120 of whom were from the Kinglake Area

2029 Homes destroyed.

80 communities and entire towns were left unrecognisable.

## **In response:**

New Test Methods were released.

New Standards & Regulations came into force.



# Responsibility

So, which professionals are responsible for ensuring that their actions protect both life & asset of the Australian Community?

Whose responsibility is it to protect our children, Mums, Dads, Nans, Grandads and friends?

- Designers?
- Architects?
- Builders?
- Manufactures?
- Fire Engineers?
- The Fire Services?
- Building Certifiers?

# We All Have a Duty of Care to Protect the Public



I believe that we, everyone involved in the process from design to sign-off have a responsibility to keep up to date with the NCC and all referenced Australian Standards & Test Methods contained within it and to endeavour to meet the compliance requirements in lieu of trying to get around them. *'I don't have to worry about things like that; that's someone else's job'* **Won't Cut It Anymore.**

It's the least we can do. If there is something we don't understand, we should never be too proud or embarrassed to ask!

**THE PERSON THAT THINKS THEY KNOW EVERYTHING-DOESN'T.**

# THERE ARE 2 FLAME ZONES

- BAL-FZ for elevations within 10m of Vegetation
- BAL-FZ for elevations outside 10m of Vegetation



# Section 9 Construction Requirements for BAL-FZ

- 9.1 GENERAL

A Building assessed in Section 2 as being BAL-FZ shall conform with Section 3 and Clauses 9.2 to 9.8 and have a minimum setback distance of 10m from the edge of the classified vegetation.

In circumstances where the 10m setback distance between the building and the edge of the classified vegetation cannot be achieved, those elements of the building that are less than 10m from the edge of the classified vegetation shall conform with AS1530.8.2

# Section 9 Construction Requirements for BAL-FZ

- 9.1 GENERAL (Continued)

The details for roof systems specified in Appendix H are the result of testing to AS1530.8.2 and are deemed to satisfy solutions for the purpose of this standard.

**Any element of construction or system that satisfies the test criteria of AS1530.8.2 may be used in lieu** of the applicable requirements contained within Clauses 9.2 to 9.8.

# AS1530.8.2 ROOF TESTED SYSTEMS

- Trafalgar Boardex™ Fyreroof BAL-FZ Roof System
- Bluescope BAL-FZ Roof System
- Promat BAL-FZ Roof System
- TBA Firefly™ BAL-FZ Roof System
- Wood Solutions BAL-FZ Roof System
- The 2 Generic Roof Systems, 1 for Steel Sheet the other for Tile (Introduced by amendment 3 of AS3959-2009 in Nov 2011) & adopted in the NCC on the 1<sup>st</sup> May 2012.

# Section 9 Construction Requirements for BAL-FZ Roof

- 9.6 ROOFS (INCLUDING PENETRATIONS, EAVES, FASCIAS AND GABLES AND GUTTERS AND DOWNPIPES)
  - 9.6.2 Tiled Roofs
    - (a) Appendix H; or
    - (b) A system tested to AS1530.8.2.
  - 9.6.3 Sheet Roofs
    - (a) Appendix H; or
    - (b) A system tested to AS1530.8.2.

# Section 9 Construction Requirements for BAL-FZ Roof

- 9.6.5 Roof Penetrations

The following applies to roof penetrations, including aerials, vent pipes and supports for solar collectors or the like, shall be sealed with mineral fibre at the roof to prevent gaps. The material used to seal the penetration shall be non-combustible.

NOTE: As a general principal, the service penetration **should not significantly compromise the performance of the element of construction it penetrates** nor should it be a means to allow the passage of burning embers or heat transfer such that the fire could spread to the interior of a structure.

# Section 9 Construction Requirements for BAL-FZ Wall

In accordance with 9.1 the only wall systems which can be used on elevations where the 10m setback distance cannot be achieved are those tested to AS1530.8.2

- 9.1 GENERAL

A Building assessed in Section 2 as being BAL-FZ shall conform with Section 3 and Clauses 9.2 to 9.8 and have a minimum setback distance of 10m from the edge of the classified vegetation.

In circumstances where the 10m setback distance between the building and the edge of the classified vegetation cannot be achieved, those elements of the building that are less than 10m from the edge of the classified vegetation shall conform with AS1530.8.2.

# Section 9 Construction Requirements for BAL-FZ Wall

In accordance with 9.1 any of the wall systems contained within Section 9.4 Walls may be used on elevations where the 10m setback can be achieved.

# Section 9 Construction Requirements for BAL-FZ Wall

- 9.4 WALLS

## 9.4.1 General

The exposed components of the external walls shall be as follows:

- (a) Non-combustible material including the following provided the minimum thickness is 90mm.
  - I. Full masonry or masonry veneer walls with an outer leaf of clay, concrete, calcium silicate or natural stone.
  - II. Precast or in situ walls of concrete or aerated concrete.
  - III. Earth wall including mud brick.or
- (b) A system conforming with AS1530.8.2-2018 when tested from the outside. Or
- (c) A system with an FRL of 30/30/30 or -/30/30 when tested from outside. Or
- (d) A combination of any of Items (a), (b) or (c).



# Section 9 Construction Requirements for BAL-FZ

If you're designing, installing or signing off on a BAL-FZ Roof or Wall System, please ensure that you cover yourself by obtaining a report from a **NATA Accredited Testing Laboratory** showing compliance with:

A manufacturers system claiming to meet AS1530.8.2-2018

This may be in the form of:

- Test Report
- Assessment Report
- Regulatory Information Report

Check the validity date on the Assessment or RIR, as these reports must have a validity date and are generally only valid for 5 years. After which time they must be revalidated by the Test Labs.

# Section 9 Construction Requirements for BAL-FZ

If you're designing, installing or signing off on a BAL-FZ Wall System, please ensure that you cover yourself by obtaining a report from a **NATA Accredited Testing Laboratory** showing compliance with:

A manufacturers system claiming to meet FRL30/30/30 or FRL-/30/30 from outside when tested to AS1530.4-2014.

This may be in the form of:

- Test Report (This must show that the system was tested to AS1530.4-2014)
- Assessment Report (This must show that the system is tested or assessed to AS1530.4-2014)
- Regulatory Information Report (This must show that the system is tested or assessed to AS1530.4-2014)

Check the validity date on the Assessment or RIR, as these reports must have a validity date and are generally only valid for 5 years. After which time they must be revalidated by the Test Labs.

# Section 3 Construction Requirements for Bushfire Attack Levels

## 3.4 HIGHER LEVELS OF CONSTRUCTION

The construction requirements specified for a particular BAL shall be acceptable for a lower level. (*explanation*)

# Section 3 Construction Requirements for Bushfire Attack Levels

## 3.5 REDUCTION IN CONSTRUCTION REQUIREMENTS DUE TO SHIELDING

- Shielding can only be applied to wall elevations
- It **cannot** be applied to **sub-floor** or **roof elevations** (*explanation*)

# Section 3 Construction Requirements for Bushfire Attack Levels

## 3.5 REDUCTION IN CONSTRUCTION REQUIREMENTS DUE TO SHIELDING

Where an elevation is not exposed to the source of bushfire attack, then the construction requirements for that elevation can reduce to the next lower BAL. However, it shall not reduce below BAL-12.5.

An elevation is deemed to be not exposed to the source of bushfire attack if all of the straight lines between that elevation and the source of bushfire attack are obstructed by another part of the same building.

The shielding of an elevation shall apply to all the elements of a wall, including openings, **but shall not apply to subfloors or roofs.**

# NCC 2022 Performance Requirements

**Adopted May 1<sup>st</sup>, 2023.**

Key Dates for adoption of the Condensation Management Element

**Australian Capital Territory 1 October 2023**

**New South Wales 1 October 2023**

Northern Territory 1 October 2023

Queensland (Modern Homes Agenda) 1 October 2023

**South Australia 1 October 2024**

Tasmania 1 October 2023

**Victoria 1 May 2024**

Western Australia 1 October 2023 with existing transition until 1 May 2024, committed to extend NCC Volume Two condensation transition to 1 May 2025. Extension of transition for NCC Volume One condensation requirements under consideration.

# NCC 2022 Part F8 Condensation Management

## Introduction to this Part

This part is intended to reduce the risk of illness or loss of amenity due to the occurrence of condensation inside a building. It does this by requiring features that enable moisture-laden air to be removed from inside the building structure.

# Deemed-to-Satisfy Provisions

## F8D5 Ventilation of roof spaces

- (1) In climate zones 6, 7 and 8, a roof must have a roof space that-
  - (a) is located-
    - (i) immediately above the primary insulation layer; or
    - (ii) immediately above sarking with a vapour permeance of not less than  $1.14\mu\text{g}/\text{N.s}$ , which is immediately above the primary insulation layer; or
    - (iii) immediately above ceiling insulation which meets the requirements of J3D7(3) and J3D7(4); and
  - (b) has a height of not less than 20mm; and
  - (c) is either-
    - (i) ventilated to outdoor air through evenly distributed openings in accordance with Table F8D5; or
    - (ii) located immediately underneath roof tiles of an unsarked tiled roof



# These DTS Clauses Do NOT apply to BAL-FZ Roof Systems

# Deemed-to-Satisfy Provisions

## F8D5 Ventilation of roof spaces

- (2) The requirements of (1) do not apply to a-
- (a) concrete roof; or
  - (b) roof that is made of structural insulated panels; or
  - (c) roof that is subject to Bushfire Attack Level FZ requirements in accordance with AS 3959.

# BAL-FZ Roof Systems must be Fit for Purpose

**From the date of adoption in each State/Territory, manufactures will have a duty of care to ensure that they have mitigated the risks associated with the encapsulation of a roof space with their Systems. If performance cannot be met with the DTS method, then it should be met with an Alternate Solution.**

## **OBJECTIVES F801 Objective**

The objective of this Part is to safeguard occupants from illness or loss of amenity as a result of excessive internal moisture.

## **FUNCTIONAL STATEMENTS F8F1 Condensation**

A building is to be constructed to avoid the likelihood of excessive internal moisture accumulating within the building structure

## **PERFORMANCE REQUIREMENTS F8P1 Condensation and water vapour management**

The risks associated with water vapour and condensation must be managed to minimise their impact on the health of occupants.

# Climate Zones 6, 7 & 8

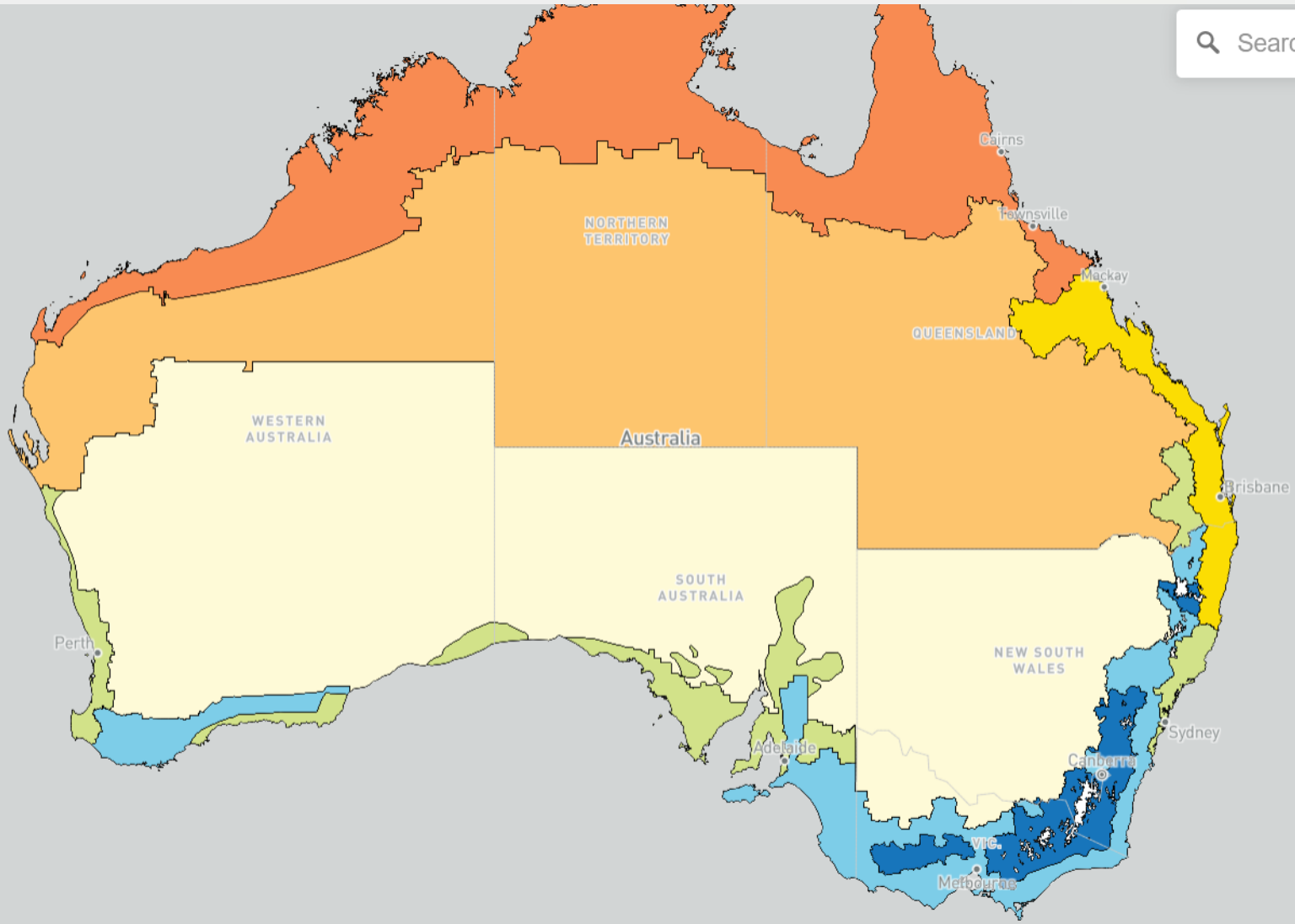
Of primary concern is construction of buildings which fall within Climate Zones 6, 7 & 8 which are the cooler zones of Australia.

The Climate Zone Maps are freely downloadable from

<https://www.abcb.gov.au/resources/climate-zone-map>

- **Zone 6** - several regions across the country – coastal and hinterland strip of southern Western Australia encompassing Albany – hinterland north of Adelaide (South Australia), coastal and hinterland area from Kangaroo Island and Adelaide around coastal and hinterland Victoria encompassing Ballarat and Melbourne – the coastal strip of southern and hinterland New South Wales west of Sydney as far north as 28 degrees south.
- **Zone 7** - sub-alpine areas of Victoria and southern New South Wales: – the south-eastern coast of Victoria – a small area around Glen Innes (New South Wales) – most of Tasmania and Bass Strait islands.
- **Zone 8** - alpine areas of Victoria, New South Wales, and Tasmania.

Search



Show LGAs

- Climate Zone 1
- Climate Zone 2
- Climate Zone 3
- Climate Zone 4
- Climate Zone 5
- Climate Zone 6
- Climate Zone 7
- Climate Zone 8



**Thank You For Your Time.  
Does Anyone Have Any Questions?**