

# ARTICLE: PASSIVE FIRE PROTECTION IN AUSTRALIA. SERIOUS REGULATORY CHANGE IS HERE NOW!

By John Rakic

## INTRODUCTION

The best part of my 32 years of work as both a Mechanical & Fire Safety Engineer have been in my beloved passive fire protection field.

Never has there been so much regulatory reform and serious changes anywhere in the world than here in Australia. My “passive” career has seen me live and work in the UK, Europe and USA, and spending time working in India, China, Vietnam, Japan, Hong Kong, Malaysia and other countries over the years.

I have always said that there is a big black box put around passive fire protection by many who want to withhold their knowledge. However, I have always been open to sharing what I know in the best interest of education and trying to see passive fire protection measures designed correctly, installed correctly, and ultimately certified correctly in line with what has been ultimately proven by fire tests.

In 2002 (and for several years following this), I started and operated the PFPA in Australia and ran Accredifire, a passive fire protection training operation. Many of you readers will remember this and very well may have attended either a fire door or passive fire protection training session.

I gave years of my time here locally to the FPA Australia as the passive chairman of their technical committees, NTAC passive delegate and chaired and/or participated in most Australian Standards around fire test methods and product standards for passive fire protection. I chaired and drafted most of the passive section for the first AS1851 all-encompassing inspection & testing (maintenance) requirements for passive fire protection elements.

I also proudly represented Australia as an elected expert on ISO TC92 for many years doing passive fire protection standards for International Standards Organisation (ISO).



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## AUSTRALIA BEFORE RECENT REFORMS

It is prudent to reflect on some of the things which to come to mind as to why we needed some major reforms around passive fire protection here in Australia. Passive Fire Protection was always at best an afterthought. It's importance in the overall gambit of fire protection was often ignored and to most people it is much less exciting than sprinklers, EWIS, fire alarms, hydrants, hose reels and even extinguishers. To most all passive fire protection represented was a fire wall, floor ceiling or shaft and fire doors and fire shutters at best.

## INNOVATION IN PASSIVE FIRE PROTECTION

In its finest hours in the late 1980's under auspices and might of Wormald International was a pioneer in many things passive fire protection. We had some world first applications right here in Australia.

Some of note included:

- First commercial use of plastic pipes in high rise building and the invention and commercialisation of the fire collar
- Subsequent invention of cast in fire collars
- First timber faced, mineral core fire doors
- First water based or acrylic fire rated sealant
- Commercialisation of intumescent fire rated glass
- AS4072.1 – the world's first application standard providing standard electrical and pipe configurations to obtain qualified field of application fire test results – many of your will know these as Appendix D & E which now live in AS1530 Part 4.

I think the final demise of Wormald in 1989, which saw this great Australian company acquired by the Grinnell subsidiary of Tyco, right smack in the middle of a terrible recession saw the innovation and focus on passive fire protection duck dive.

Since 1989, I can't think of too many innovations of note in passive fire protection outside of the ones I have personally been involved with.

Some of note would include:

- Lorient intumescent dampers in 1993 – my first serious invention
- Unicollar – 20 years ago by Promat in or around 2000
- SNAP cast in collar for floor waste applications.
- Abesco cable transits for the network or data cable pandemic – my first product as Fire Containment in 2006
- The improvement in intumescent paint technology – Nullifire – ongoing – I remember working with Nullifire in the early 1990's trying to sell solvent based materials for 2-hour fire protection.
- FyreWRAP by Trafalgar & Unifrax – I am very proud of this initiative.
- FyreBOX slab mount and cast in by Trafalgar – this chapter is only just being written.
- SIDERISE introduction by Trafalgar for the cladding pandemic

Forgive me if I missed some of note...



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## THE SAD STATE OF NATION BEFORE THESE CURRENT REFORMS

Those of us who are old enough will remember the first BCA in 1990.

Wow, we finally had a set of uniform & national technical provision for construction of Buildings; albeit the State & Territory Appendices and variations were thick and plentiful.

We saw the establishment of the Australian Fire Code Reform Centre, a leading research Group, which did some world leading projects to improve what we call the Deemed to Satisfy Provision of what was BCA1990. Yes, there was a Project 4 on cladding and strong recommendations for improved full scale fire test methods – Oops, those were sadly ignored at great cost to Australians now!

All this good work got shelved in 1996, when from serious pressure from what was BOMA and now is PCA, the ABCB or Governments launched our first Performance Based Building Code 1996. This was probably fast tracked as our friends over the ditch in NZ beat us as they did their new performance base BCNZ in 1993. Along came Fire Safety Engineering and the now infamous 'Alternative Solutions'.

Things spiralled downwards from there sadly in terms of passive fire protection.

The appetite for changes to the Deemed to Satisfy provision for Section C (Fire Resistance) was zero.

ABCB had different flavour fish to fry. Access for the Disabled, Acoustics, Legionella after some terrible outbreaks, and ENERGY. Until recently nothing much at all had changed in Section C of NCC (previously BCA) since 1990.

We saw the privatisation of building surveying, design and construct and even worse design, construct, and finance projects.

Fire Safety Engineers and Private Certifiers dealt with every anomaly around passive fire protection in what I would say were very ordinary Alternative Solutions, mostly done to save the Developer or Builder money and to fix problems around compliance for poor construction.

Probably the most destructive few sentences adopted in BCA1990 for passive fire protection was that old fire test were OK to use forever if they were conducted before 1990. This meant if you had old fire test, you did not have to re-fire test and you could sell older systems which would not pass fire tests to the various iterations of the AS1530 Part 4 fire test method. Fire door, fire rated access panel and fire damper manufacturers were the biggest benefactors of this anomaly.



In passive fire protection, **enforcement** of BCA requirements and those who were taking responsibility for installation and **compliance paperwork** provided for certification were the **BIGGEST** root cause issues to the poor passive fire protection we see in many buildings built over the last 15 years. Would you really buy an apartment built in the last 10 years? We know all the bad press around this space and the poor apartment owners dealing with this debacle.

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## THIS IS WHAT WAS HAPPENING PREVIOUSLY...

A builder was really a glorified project manager. They did not want to take any responsibility for passive fire protection compliance. They farmed this off to the trades. Plasterers had to provide compliance paperwork for the fire walls, and electricians, plumbers, HVAC& R contractors and the like had to do the same for the services passing through fire barriers.

Many of the certifiers or building surveyors were doing little inspections of passive fire protection & some of the less professional ones were just accepting letters of compliance from the trades without doing any inspections.

The same scenario applied to waterproofing.

So, what happened?

**Building were built like SHIT.**

Then some clever and somewhat entrepreneurial consultants appeared from nowhere, We will do a FREE inspections for building owners within the 7 years home warranty or defect liability period and send the report to the builder for remediation, then project managing the necessary upgrades for a fee.

AS1851 inspections of passive fire protection also started to be conducted by the larger inspection and testing companies and specialty passive fire companies.

BOOM... Builders became aware that they had a SERIOUS problem and the better ones had to find money and go back and fix them and we all know the number of 'fly by nighters' who just wound up their company and left the building owners or Strata Bodies with fire orders and big bills to pay to commission the building correctly belatedly.

Some of the big builders started to look seriously at Passive Fire Protection. Lend Lease and Hutchies were the first ones to take serious action and start asking for fire test reports and trying to do passive fire protection correctly the first time. They even did many fire tests themselves using industry's products.

Finally, the straw camel that broke the camel's back arrived.....

We had some serious fires around cladding; Grenfell which needs no introduction and the Lacrosse and New Towers fires in Melbourne.

Enter the insurance industry. Insurance Premiums for Safety Engineers & Private Certifiers sky rocketed.

Practitioners stop fixing up passive fire protection debacles with Alternative Solutions and started asking for fire tested systems and applying the Deemed to Satisfy provisions of the NCC.



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## PASSIVE FIRE PROTECTION REFORMS AND STATUS TODAY

NCC2019 put the cat amongst the pigeons and the poor pigeons were all eaten; literally.

For many, they would not have even noticed, but in 2018 when the DRAFT for the proposed NCC2019 was gazetted, some monumental changes were introduced.

**From May 1, 2022 – and to clarify this, NOT FROM NCC2022, but on this day itself, all products requiring an FRL under building approvals, built to NCC2019 and of course NCC2022, must have current AS1530 Part 4 – 2014 fire testing.**

Also, in NCC 2019, a new Schedule 5 was published. This gives clarity around what we all know as assessments or letter of opinions for passive fire protection products or systems.

All assessments used for compliance must comply with Schedule 5 and this puts the onus of the certifiers to read and verify all assessments and the nominated FRL's do in fact comply with Schedule 5.

Many of these assessments should NEVER have been written, and many have no expiry dates (a requirement of AS4072.1). All manufacturers and suppliers have them and know which ones are dubious and outdated, or worse technically incorrect, but sadly too many keep using them and play on the naivety of industry.

It's very pleasing to see so many certifiers and some builders rejecting these assessments after checking and validating that the variations concluded in the assessment are not minor in nature and have NOT been justified adequately or correctly as per NCC Schedule 5.

Now we see NSW embarking on a Building Designers and Practitioners Act on June 1, yes, a few weeks away. Detailed design of passive fire protection is now mandatory in NSW.

WOW, what a frenzy for us at Trafalgar. We were so inundated for request for fire tests we had to create a KNOWLEDGE CENTRE and put all of our intellectual property in the public domain on [www.tfire.com.au](http://www.tfire.com.au).

We are working with many builders assisting them and their building service consultants with detailed designs for passive fire protection systems.

The Builders now must take responsibility for design and ongoing compliance of the openings in fire walls and we will see a shift in contractual arrangements whereby the builder will now have to take a more proactive role in the passive fire protection design and execution.

At Trafalgar we have certainly had to get ready for the changes. We have conducted in the order of 75 fire tests since the middle of 2018 and the millions we have spent see us in GREAT shape already today to offer all our products and systems as compliant to the May 1, 2022 deadline for INSTANT change. We had to be ready now as buildings being built under NCC2019 effectively require this if they do not finish before May 1, 2022.

### Fire-resistance of building elements

#### Schedule 5 Fire-resistance of building elements

##### 1. Scope

This Schedule sets out the procedures for determining the FRL of building elements.

##### 2. Rating

A building element meets the requirements of this Schedule if—

- (a) it is listed in, and complies with Table 1 of this Schedule; or
- (b) it is identical with a prototype that has been submitted to the *Standard Fire Test*, or an equivalent or more severe test, and the FRL achieved by the prototype without the assistance of an active fire suppression system is confirmed in a report from an *Accredited Testing Laboratory* which—
  - (i) describes the method and conditions of the test and the form of construction of the tested prototype in full; and
  - (ii) certifies that the application of restraint to the prototype complied with the *Standard Fire Test*; or
- (c) it differs in only a minor degree from a prototype tested under (b) and the FRL attributed to the building element is confirmed in a report from an *Accredited Testing Laboratory* which—
  - (i) certifies that the building element is capable of achieving the FRL despite the **minor departures from the tested prototype**; and
  - (ii) describes the materials, construction and conditions of restraint which are necessary to achieve the FRL; or



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We already see an appetite for simplifying passive fire protection design and systems.

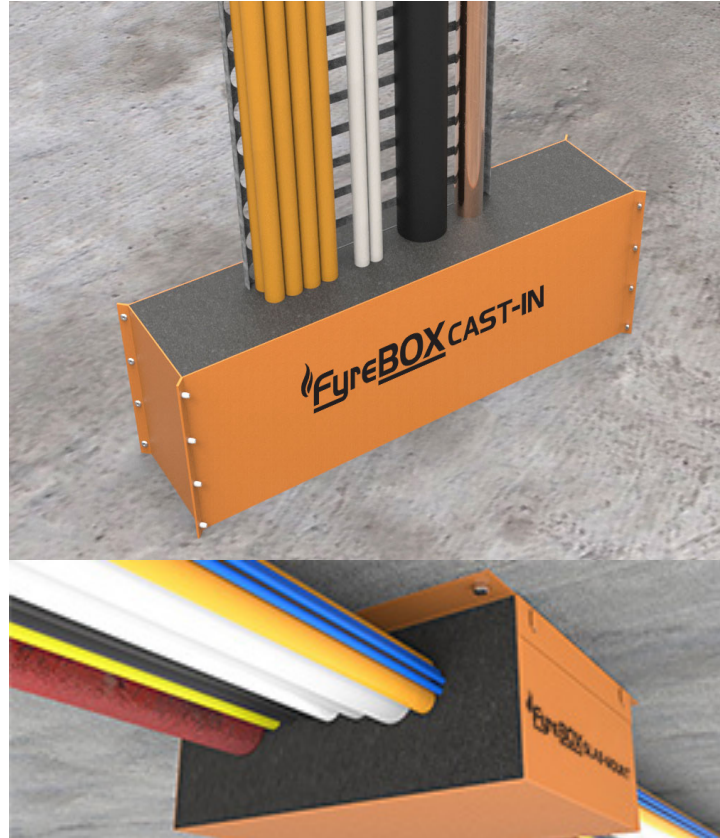
Instead of making multiple holes, having to document each and every opening and inspect so many openings, the FyreBOX range is proving EXTREMELY popular.

The cast-in situ FyreBOX, which is fixed to formwork and helps make a fire rated opening, has had a HUGE uptake and our factories in Western Sydney are well prepared for the growth in sales we are already experiencing, and recent factory equipment upgrade are preparing for even more volume

The award-winning FyreBOX Slab-Mount, which allows services to be run for apartments before the unit to corridor wall is erected is also a BIG favourite.

We have worked hard on our messaging, “Trust Trafalgar, it just makes sense”, “Fight fire with FYRE” as many of our passive products carry the FYRE prefix, and last but not least “Visible Compliance”.

The industry is getting very comfortable with our **ORANGE** product range and SYSTEMS.



## CONCLUSIONS

Understand the changes around passive fire protection.

They are here right now.

Start insisting and using AS1530 Part 4 – 2014, modern fire test reports.

Be aware of assessments – THE WARNING SIGNS ARE EASY TO SPOT

- Those without expiry dates are DEAD IN THE WATER
- One or two pagers are VERY DANGEROUS
- No mention of AS4072.1 – BE VERY WARY

The passive fire protection world has changed, and you need to get on the program, or it will cost you in your bottom pocket.