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Often, when people think about a building's fire protection system they think about its alarm and sprinkler systems when, in reality, it is much more. It is a collaboration of different components and parts that may be considered Active Fire Protection or Passive Fire Protection.

Put simply, active fire protection uses systems that take action in putting out the fire. Actions may be manually operated, like a fire extinguisher or automatic, like a sprinkler, but either way they require some kind of action. Active Fire Protection includes fire/smoke alarm systems, sprinkler systems, fire extinguishers as well as firefighters.

Passive fire protection, on the other hand uses systems that help prevent the spread of fire and smoke from one room to the next by compartmentalizing a building. These systems help to limit the amount of damage done to a building and provide its occupants more time for evacuation. Systems include fire/smoke dampers which are used to prevent the spread of fire/smoke throughout the building through its ductwork and fire doors, and fire walls/floors which help to compartmentalize a building. Photoluminescent egress path markers help light the way to safety.

As buildings get smarter so does the interaction between active and passive fire protection systems. Education is increasingly becoming a vital component of fire protection as well. To view fire protection as just the aggregation of the individual compartments is to be unaware of how their interplay actually works, and not an appropriate construct in the fire protection context. Fire protection systems are a series of interlocking components and connections, each dependent on the other for the system to be effective.

For example, a fire sprinkler system is often a buildings first active defence against a fire and its intended travel path. Yet it must also work together with the alarm system that will notify the buildings inhabitants, fire services and other first responders to the incident. Then there are the passive fire protection measures that further slow the fire's egress.

A fire protection system is not 'just' a fire protection system though. Every system, like a fingerprint is unique. Why? Every building is slightly different, building materials vary, mains water pressures vary and so on. An open plan office building with 50 floors is different to a 50 floor residential tower which is different again to a mixed use 50 floor tower. Of course these structures are also vastly different to a tunnel carrying vehicular traffic and a health care or education facility.

Different building classes and use of buildings mean the fire protection requirements for any given structure vary. There are dozens of Australian Standards, (AS), Australian/New Zealand Standards (AS/NZS), International Organisational Standards (ISO), guidelines, legislation and regulations devoted to fire protection.

All these requirements are underpinned by the core principle of enabling all inhabitants to safely evacuate the structure without injury.

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Some examples of the components that make up a fire protection system:

Water based sprinkler systems, pre action, deluge		Fire indicator panels	Fire pumps
Water storage tanks	Hydrants	Fire hose reels	Fire extinguishers
Emergency warning systems	Fire detection and alarm systems	Emergency lights	Escape signage
Smoke and heat alarms	Fire retardant materials	Fire proofing materials	Fire blankets
Special hazard systems	Fire shutters	Fire rated curtains	Fire rated doors
Fire collars	Fire rated cabling		

Fire Protection systems and their correct design, installation and maintenance are critical for protecting people, buildings and assets in the event of a fire. Therefore it is imperative that all aspects of fire protection work is carried out by competent practitioners with the appropriate qualifications and credentials.

In this decade alone, we've seen two clear examples of properly installed and maintained fire protection systems preventing a possible catastrophe. In November 2014 the Lacrosse building fire in Melbourne demonstrated the value of a compliant, fully functional fire protection system. The activated sprinkler system helped prevent the fire from penetrating the internal structure enabling over 500 people to safely evacuate and saving the building from collapse despite the fire roaring with a speed and ferocity not seen before in the Australian built environment. In August 2018 the activated sprinkler in an electrical riser prevented the spread of fire in a multistorey office tower in Melbourne's CBD that was also encased in combustible cladding.

However, based on historical data it can be said that fire safety systems in numbers of buildings in Australia are non-compliant and are at high risk of not protecting the occupants of a building in the event of fire.

Unfortunately inadequate/noncompliant fire protection systems can result in tragedy:

- Victoria – Kew Cottage 7 April 1996, 9 lives lost
- Queensland – Childers Backpacker Hostel 23 June 2003, 15 lives lost
- New South Wales – Bankstown apartment fire 7 April 1996, 1 life lost

NFIA has been at the forefront of the issue of fire protection non-compliance for the last 20 years and has provided many submissions to various reviews during this time which have examined non-compliance, self-certification, accreditation and licensing within the Australian building and construction industry.

Despite these reviews and the industry's expert input, very little has changed and we continue to tolerate non-compliant systems which could result in a higher risk to people and property in Australia in the event of a fire. This sad reality exists because of a legislative framework in some states which enables unqualified practitioners to design, install, maintain and test essential fire safety systems.

What we have found though, is that change often follows a fire disaster. Coroner's recommendations and other forms of investigative outcomes emerged and regulators then make changes to strengthen the fire safety framework for the community.

We recently saw this play out in England. The consequences of a weak fire protection regime were highlighted by the Grenfell Tower tragedy in London, England. In response to this tragedy the local Council committed to installing fire protection systems in all 213 of their residential buildings.

Queensland responded to the Childers Backpacker Hostel fire deaths by creating the benchmark regulatory system for fire protection in Australia with the key features being a fire protection licensing system for contractors and workers that cover fire protection design, installation, certification and service activities.

NFIA believes that there are 4 Core Principles of Good Fire Protection Regulation

1. Registration of Fire Protection Practitioners

The biggest impediment to ensuring fire protection systems are properly designed, installed, inspected and maintained is a lack of registration or licensing of fire protection practitioners in many Australian jurisdictions.

The situation is at its worst in Western Australia. In an ironic twist, there exists no registration for fire safety practitioners even though life safety is at risk if the system is inoperable but the system's pipes must be painted by a licenced painter. In a submission to the WA Government NFIA provided a dozen examples of non-compliant fire protection systems in Western Australia that have been incorrectly installed and/or tested and subsequently signed off as being compliant and operable.

Our examples include a description of the building in which these non-compliant systems can be found and include government buildings, office buildings, high rise residential apartment buildings and aged care facilities. Our examples include a description of the fault and its consequences. In all cases the fault could render the system inoperable in the event of a fire. We identified when these faults would have occurred and while some are examples of non-compliant design or installation, others are a result of general wear and tear and are faults which should have been identified during routine and maintenance checks. We also included a picture of the fault for each example.

There must be a comprehensive system of contractor registration across all occupations involved in the design, installation, testing, commissioning and maintenance of fire protection systems in Australia.

The Queensland Government responded to the Childers Backpacker Hostel fire deaths by creating the most robust regulatory system for fire protection in Australia. NFIA suggests implementing a similar licensing scheme to that which is currently operating in Queensland across all jurisdictions.

2. Appropriately Trained Fire Protection Practitioners

NFIA's view has always been that the design, installation and maintenance of fire protection systems and their subsequent certification should only be carried out by those with appropriate skills, knowledge and qualifications. Therefore any licensing scheme should be underpinned by a suitable qualifications and competencies framework.

NFIA believes any robust licensing scheme must align national training packages with licensing categories, scopes and prescribed activities. The current Australian training framework provides fire protection qualifications at Certificate II, Certificate III, Certificate IV and Certificate V. These Qualifications are on the National Training Register and the organisations delivering them are registered with ASQA (The Australian Skills Quality Authority).

However not all states require these nationally recognised qualifications. The situation is at its worst in NSW where industry schemes can accredit Competent Fire Safety Practitioners who may have only limited education. NFIA has serious concerns about pseudo qualifications - that are actually proprietary in house training courses with significant gaps in coverage – becoming a misleading and mediocre benchmark for such an important life and death issue as building fire safety.

3. Enforceable

If we introduce an independent, standard, consistent national registration system, then we must align it with an independent, standard and consistent compliance and policing system.

NFIA data says that only approximately 20% of submitted fire protection system defects are generally acted on by building owners because there is little enforcement of building owner lodgement of required annual reporting, within the required timeframe.

Low defect rectification levels in an environment without any policing and penalty, disincentivises quality work and emboldens cowboy operators. The solution is to strengthen building owners' accountability for the fire safety of their building by enabling the regulator to impose robust penalties for non-compliance with annual building owner reporting requirements plus robust penalties for not acting on defect rectification reporting by the fire protection service provider.

4. Government Run

NFIA is strongly opposed to any body other than Government acting as the regulator. We cannot support the privatisation of regulatory oversight. A robust registration system should be underpinned by an independent registration authority and only Government should be performing this role.

A prime example of the problem arising from enabling non-governmental agencies to administer an accreditation scheme for fire safety practitioner registration is the proposed NSW system. As it currently stands, each NSW private industry accrediting authority may decide itself the categories of accreditation and the qualifications that are required for any

individual applying in any registered practitioner category. So you could have a situation where multiple accrediting authorities require different qualifications in the same practitioner category of registration.

How does an outcome like this promote good fire protection and reduce fire safety risk? Why should the community not expect to have the same high standard of fire protection regardless of where they live? We can consistently register electricians generally to the same standards across Australia, why do we not seek to extend that same level of regulation to fire protection?

When we think of a fire catastrophe the Grenfell Tower Fire in London will always come to mind. Tragically 72 people lost their lives because of a weak fire protection regime. According to Dame Hackitt in her 'Building a Safer Future' Report systemic failure caused by several factors led to the devastating fire. Combustible cladding was not the only reason for the fire disaster; instead, factors such as ambiguities and inconsistencies in the regulatory framework; indifference to public safety issues by compromising quality and execution; lack of clarity regarding the roles and responsibilities of all stakeholders involved; and inadequate regulatory oversight were responsible for the events that led to the fire.

Sadly, Australia is not immune to these issues. Based on historical data it can be said that fire safety systems in numbers of buildings in Australia are non-compliant and are at high risk of not protecting the occupants of a building in the event of fire.

This sad reality exists because of a legislative framework in some states which enables unqualified practitioners to design, install, maintain and test essential fire safety systems. Following is a comparison of what states require in regards to fire protection licensing.

State	Licensing regime	Government's response
QLD	<ul style="list-style-type: none"> Queensland introduced a fire protection licensing system in 2010. Any person who performs or supervises fire protection work is required to hold a license. 12 unique Fire Licence classes with defined scope of works. Underpinned by aligning the fire protection task with the relevant qualification. 	<ul style="list-style-type: none"> In response to the 'Building Fire Safety in Queensland Budget Accommodation Report', which was released after the Childers backpacker hostel fire, the Queensland Building and Construction Commission Act 1991 (QBCC Act) was amended to include an occupational licensing scheme for the installation, maintenance or certification of a fire protection system for a building.
NSW	<ul style="list-style-type: none"> A licence is required before any plumbing, draining or gasfitting work can be undertaken. Therefore there exists some licencing requirements relating to the installation of hose reels, hydrants and fire sprinkler systems but not for their design and testing. Fire alarm systems, EWIS systems, mechanical air handling systems, portable fire extinguishers and passive fire protection measures are all examples where no licence or qualifications is required for the design, installation or testing. 	<ul style="list-style-type: none"> NSW Government has recently announced a package of fire safety reforms for both new and existing buildings. They have overhauled the regulation of certifiers by rewriting the Building Professionals Act. The government will endorse an industry accreditation scheme in lieu of an independent State run licensing regime. This Accrediting Body will accredit competent fire safety practitioners to complete Annual Fire Safety Statements and critical stage inspections. There will be a designer class of accreditation.
VIC	<ul style="list-style-type: none"> Any person who carries out plumbing work, including fire protection work, must be registered or licensed with the Victorian Building Authority. 	<ul style="list-style-type: none"> NFIA is concerned that crucial elements of fire protection work (particularly maintenance and testing) is increasingly being conducted by unregistered

	<ul style="list-style-type: none"> To obtain the license they must have the appropriate qualifications and experience for the class of plumbing work for which they are applying. Compliance Certificates are issued by licensed individuals to certify that their work complies with all regulatory requirements. 	<p>practitioners.</p> <ul style="list-style-type: none"> The recent Plumbing Regulations define plumbing works as including fire protection. There will be a transition plan to protect the unqualified workers in this field while they upskill
SA	<ul style="list-style-type: none"> Any person, business or company offering services as a plumber, gas fitter or electrician, must be licensed as a contractor. You are considered to be a plumbing, gas fitting or electrical contractor if you install fire protection sprinklers. Hose reels, EWIS systems, mechanical air handling systems, portable fire extinguishers and passive fire protection measures are all examples where no licence or qualifications is required for the design, installation or testing. 	<ul style="list-style-type: none"> The SA Government has introduced a restricted licence category for those who complete up to 6 monthly tests of fire protection systems and has recently extended it to cover the annual testing and repairs of hose reels.
WA	<ul style="list-style-type: none"> There exists no licensing regime in WA for fire protection work The WA Department of Fire and Emergency Services is commissioned to test the fire protection system of a commercial building before being able to connect it to the DFES direct brigade alarm system. However, residential buildings do not require any such test. 	<ul style="list-style-type: none"> NFIA has met with representatives from the WA Building Commission to encourage a commitment to address the issues. NFIA made submissions to the Review of Licencing and the Review of Plumbing Regulations in WA and in both submissions recommended that an occupational licencing system for fire protection be introduced as a matter of urgency.
Tas	<ul style="list-style-type: none"> A permit is issued by the Chief Officer of the Tasmanian Fire Service to install, maintain or repair fire protection equipment. Unfortunately, the system is under pressure because of a lack of qualified island resources to undertake fire protection work. 	<ul style="list-style-type: none"> NFIA remains vigilant in its lobbying in Tasmania against deregulation.

As you can see the situation is at its worst in Western Australia. An unlicensed (and potentially unqualified) person can design and install a fire protection system in a high rise residential building where 300 people reside. In an ironic twist they must employ a licenced painter to paint the system's pipes! In a submission to the WA Government NFIA provided a dozen examples of non-compliant fire protection systems in Western Australia that have been incorrectly installed and/or tested and subsequently signed off as being compliant and operable.

Our examples include a range of well populated buildings and a description of the fault. We identified when these faults would have occurred and found they were occurring right throughout the lifecycle of the systems. Importantly, in all cases the fault could render the system inoperable in the event of a fire.

NFIA believes that the first of the 4 Core Principles of Good Fire Protection Regulation is the registration of fire protection practitioners. NFIA believes that there must be a comprehensive system of contractor registration across all occupations involved in the design, installation, testing, commissioning and maintenance of fire protection systems in all Australian jurisdictions.

Registration of practitioners is a regulatory mechanism for providing public accountability. Licensing of fire protection contractors would provide:

- Better protection for people and property in the event of a building fire;
- Improved training and safety for fire protection workers;
- Improved compliance with building fire safety regulations leading to reduced costs for owners, occupiers, government, emergency services and local governments;
- Greater community confidence that work is performed by appropriately skilled workers to the prescribed standards; and
- Reduced risks for fire fighters responding to fire emergencies.

NFIA is not alone in recommending that fire protection should be licenced. The recently released Shergold Weir Report: Assessment of the Effectiveness of Compliance and Enforcement Systems for the Building and Construction Industry across Australia recognises that there are certain occupations that all jurisdictions should register. One of which is a fire safety practitioner (Recommendation 1).

However not all licencing and registration schemes are created equal. A good licencing scheme (and therefore the other core principles of good fire protection regulation) must recognise appropriately trained fire protection practitioners. Any licensing scheme should be underpinned by a suitable qualifications and competencies framework and must align national training packages with licensing categories, scopes and prescribed activities. A good licencing scheme must be enforceable and above all should be government run. There will more about these issues and why they are important in later editions.

To create a good licensing system NFIA suggests that all Australian governments should look to Queensland which has the most detailed and mature fire protection licensing system in Australia. Queensland licencing is for the entire fire industry, including alarms. It is funded by industry through registration fee payments and is aligned with national qualifications. Registration is administered by the Queensland Building and Construction Commission (QBCC) and there are 12 unique Fire Licence classes with defined scope of works.

While the Queensland system isn't perfect and can always be improved, it is the standard bearer for fire protection licensing in Australia and the challenge for other jurisdictions is to "harmonise" their licensing arrangements – or lack of – to the Queensland standard.