NSW GOVERNMENT | Customer Service

Discussion Paper 1

Regulation of fire safety systems
(Design)

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Glossary

The following is a list of terms and acronyms used in this document.

Term	Description
ABCB	Australian Building Codes Board (ABCB) is a Council of Australian Government standards writing body that is responsible for the development of the National Construction Code (NCC).
Building Bill	The Building Bill 2024 is the proposed legislation governing building licences that will replace the *Home Building Act 1989*.
BCA	Building Code of Australia (BCA) – Volumes One and Two of the National Construction Code.
BCE Bill	Building Compliance and Enforcement Bill 2024.
Building Confidence Report	*Building Confidence: Improving the effectiveness of compliance and enforcement systems for the building and construction industry across Australia'* report (BCR) by Professor Peter Shergold AC and Ms Bronwyn Weir, commissioned by the Building Ministers' Forum in 2017.
BDC Act	*Building and Development Certifiers Act 2018.*
Class 1a building	Class 1a buildings are single dwellings such us a detached house; or one of a group of attached dwellings such as a town house.
Class 2 building or building with a Class 2 part	Class 2 buildings are apartment buildings. They are typically multi-unit residential buildings where people live above and below each other. Class 2 buildings may also be single storey attached dwellings where there is a common space below. For example, two dwellings above a common basement or carpark. A building with a class 2 part is a building of multiple classifications that has a class 2 as well as another class, making it a "mixed class" (for example, a class 2 with a class 5 which are office buildings used for professional or commercial purposes or a class 6, which are typically shops, restaurants and cafés).
Class 3 and 9c buildings	Class 3 buildings are residential buildings, other than houses or apartments, that are places of long term or transient living for a number of unrelated people. A class 3 building may be a large

Term	Description
	boarding house, guest house, hostel, or workers' quarters. A class 3 building may also be a care facility other than a class 9 building. A class 9c building is a residential care building where 10% or more of persons who reside there need physical assistance in conducting their daily activities and to evacuate the building during an emergency, such as an aged care facility.
Complying Development Certificate (CDC)	Complying Development Certificate (CDC) is a combined planning and construction approval for straightforward development that can be determined through a fast-track assessment by a council or an accredited certifier.
Construction Certificate (CC)	Before you start any building or construction work, you'll need to apply for a Construction Certificate (CC). This certificate confirms that the construction plans and development specifications are consistent with the development consent, and comply with the Building Code and any other council requirements.
DBP Act	*Design and Building Practitioners Act 2020*
DTS	Deemed-to-Satisfy (DTS) provisions are provisions that are deemed to meet the Performance Requirements of the NCC by following set procedures of what, when and how to do something from the National Construction Code (NCC), which includes materials, components, design factors and construction methods. A DTS solution is one of two compliance pathways under the NCC (a performance-based code).
EPA Act	*Environmental Planning and Assessment Act 1979.*
EPA Fire Regulation	*Environmental Planning and Assessment (Development Certification and Fire Safety Regulation) 2021*
Fire Safety Working Group	A group established by the Department of Customer Service to identify areas of reform for fire safety in both building regulation and industry practice. Chaired by Michael Lambert, the group comprises representatives from fire safety, engineering, and certification peak bodies, as well as state government and local government.

Term	Description
FRNSW	Fire and Rescue NSW.
HB Act	*Home Building Act 1989.*
NCC	The National Construction Code (NCC) is Australia's primary set of technical design and construction provisions for buildings. As a performance-based code, it sets the minimum required level for the safety, health, amenity, accessibility and sustainability of certain buildings. The Australian Building Codes Board (ABCB), on behalf of, and in conjunction with, the Australian Government and each State and Territory government, produces and maintains the NCC.
Occupation Certificate (OC)	An Occupation Certificate (OC) is issued by the Principal Certifier (local council or private certifier). It authorises the occupation and use of a new building, or a change of building use for an existing building.
Performance solution	A performance solution is unique for an individual situation. These solutions are often flexible in achieving the performance outcomes and encourage the use of innovative design and technology. A performance solution directly addresses the performance requirements of the National Construction Code (NCC) by using one or more of the assessment methods available within the NCC. A performance solution is one of two compliance pathways under the NCC, which is a performance-based code.
The Department	The Department of Customer Service.
The Regulator	NSW Fair Trading and from 1 December 2023 the NSW Building Commission.
The Secretary	The Secretary of the Department of Customer Service.
Victoria Report	The *Investigating Passive Fire Protection Defects in Residential Buildings Report 2022* by the Victorian Building Authority.

Consultation process

Interested individuals and organisations are invited to provide a submission on any matter relevant to the regulation of the design of fire safety systems in NSW addressed in this discussion paper.

We would prefer to receive submissions by email and request that any documents provided to us are produced in an 'accessible' format. Further information on how you can make your submission accessible is contained at http://webaim.org/techniques/word/

Please provide submissions by:

Email to: HBAReview@customerservice.nsw.gov.au

The closing date for submissions is **25 January 2024.**

Evaluation of submissions

All submissions received will be considered and assist in the preparation of the Building Bill. If further information is required about your submission, targeted consultation will be held with relevant parties.

Each stage of the consultation will also be supported through industry roundtable meetings providing you with further opportunities to discuss the future of the fire safety framework.

Next steps

This paper sets out the first stage of consultation on fire safety reforms which covers the design of fire safety systems. Further papers on the installation and commissioning, certification, testing and maintenance will be released in early 2024 for comment. This will provide you with time to consider each stage of the fire system and to provide your feedback over a longer period of time.

After the Government has finalised the Bill, expected to be in mid-2024, it will be presented to, and considered by, Parliament.

Executive summary

Fire safety in the built environment is the cornerstone of building regulations worldwide. Ensuring that the buildings we live in, work in, or visit are fire safe is a fundamental outcome for all buildings.

Responses to recent building incidents have driven reforms under the Construct NSW transformation strategy to improve transparency, accountability, and the quality of work in the NSW building and construction industry. The reforms have highlighted the costs of substandard work, which are felt by everyday building owners who rely upon design and building practitioners to produce compliant work.

Building failures across all building types increase costs to building owners, other practitioners, financiers, and insurers to remediate defects and put lives at risk. These failures tarnish the industry even for those who produce quality work – negatively impacting overall confidence in the building and construction industry.

Fire safety practitioners operate in a complex regulatory landscape (see **Appendix A** for current regulatory obligations for fire safety). They provide many different services throughout the building lifecycle, accompanied by varying degrees of regulation or industry accreditation. Fire safety practitioners are a specialised part of the building sector who are responsible for the design, installation, commissioning, maintenance, and periodic testing of fire safety systems. While there has been progress over recent years to lift the quality of fire safety work, in NSW, fire safety system defects are amongst the most common building defects – putting life and property at risk due to the lack of capability or accountability of practitioners.

As part of the NSW Government's commitment to introduce a whole of sector Building Act, the Department is seeking to design an end-to-end accountability process for fire safety systems. The new process will address the risks associated with fire safety and will be informed by the findings of the Fire Safety Working Group (**Working Group**) October 2021 *Improving fire safety in new and existing buildings* report (**Working Group Report**).[1]

Underpinning the Working Group Report were recommendations to ensure that all fire safety practitioners should be appropriately licensed, registered, or accredited. The proposed Building Act seeks to implement these recommendations.

[1] NSW Government, *Improving fire safety in new and existing buildings* (Report, October 2021), <https://www.nsw.gov.au/building-commissioner/building-and-construction-resources/research-on-fire-safety-reforms>.

This paper sets out the first stage of consultation on fire safety reforms that are proposed to be included in the enabling legislation for the Building Act when it is introduced to Parliament in 2024.

These changes focus on ensuring that every person whose work involves or impacts a fire safety system, whether it is an active or passive fire safety system, must be competent to do that work and that fire safety systems are considered not only as discrete components but an integrated whole. In addition to presenting the proposed overarching strategy for fire safety, this paper details the proposed approach to the regulation of fire safety design.

This discussion paper has been developed based on findings from the Working Group and feedback received from key industry stakeholders from the 2022 public consultation on draft legislation to introduce a Building Bill and Building Compliance and Enforcement Bill (**BCE Bill**). It discusses possible amendments related to fire safety systems and seeks your feedback to further inform the regulatory framework for fire safety systems in buildings.

Further papers on the installation and commissioning, certification, testing and maintenance will be released in early 2024 for comment.

Case for change

Regulatory complexity

In NSW, fire safety is currently regulated across multiple legislative frameworks and regulators. While fire safety touches on critical parts of the planning and building sectors, it is clear that over time the regulatory framework has become unduly complex and, at times, unnecessarily duplicative.

In addition to performance requirements and mandatory processes detailed under the National Construction Code (**NCC**), fire safety practitioners must meet obligations under the legislation listed in the table below.

Function	Legislation expressly regulating function
Design	*Environmental Planning and Assessment Act 1979* *Building and Development Certifiers Act 2018* *Design and Building Practitioners Act 2020*
Installation and commissioning	*Environmental Planning and Assessment Act 1979* *Building and Development Certifiers Act 2018* *Design and Building Practitioners Act 2020* *Home Building Act 1989* *Gas and Electricity (Consumer Safety) Act 2017* *Plumbing and Drainage Act 2011*
Certification	*Environmental Planning and Assessment Act 1979* *Building and Development Certifiers Act 2018* *Design and Building Practitioners Act 2020* *Home Building Act 1989* *Gas and Electricity (Consumer Safety) Act 2017*
Testing	*Environmental Planning and Assessment Act 1979* *Building and Development Certifiers Act 2018*
Maintenance	*Environmental Planning and Assessment Act 1979* *Building and Development Certifiers Act 2018* *Design and Building Practitioners Act 2020* *Home Building Act 1989* *Gas and Electricity (Consumer Safety) Act 2017* *Strata Schemes Management Act 2015* *Work Health and Safety Act 2011*

For further information on how the legislation and their supporting regulations apply at the design, installation and commissioning, certification, testing, and maintenance phases of fire safety system management refer to **Appendix 1.**

Incidence of defects in fire safety systems

Fire safety systems are critical to protecting lives and property from the disastrous impacts of fire. Not only do fire safety systems support the suppression and control of fire and smoke, but they also ensure that there is adequate time for people to get out of a building and to facilitate fire-fighting operations.

The Building Code of Australia (**BCA**) prescribes varying requirements for fire safety systems depending on the class and type of building. These requirements apply a holistic suite of design and construction requirements for buildings based on how the building is to be used, its size, and the types of people who will be living in, working in, or occupying the building. NSW legislation mandates that design and building practitioners, including those involved in the certification, testing and maintenance of fire safety systems, must meet the performance requirements detailed in the BCA and referenced standards to ensure these people are protected.

Despite the dire consequences of failing to design, install and maintain a functioning and compliant fire safety system, fire safety system defects are among the most common in NSW.

A 2021 study collaboration between the Strata Community Association and the Office of the Building Commissioner found defects related to fire safety systems were one of the two most commonly occurring serious defects in residential strata buildings in 2021.[2] In surveyed buildings, fire safety system defects were found in 14% of all class 2 buildings, with most of these defects (51%) identified through independent expert advice commissioned by the owners corporation. In the 2023 iteration of this research, fire safety system defects increased by over 70%, with 24% of surveyed buildings identifying a serious defect in their fire safety systems.[3]

Audits conducted by NSW Fair Trading's building and construction compliance teams on class 2 buildings in 2022 identified 392 serious defects, with 105 related to fire safety. In

[2] Construct NSW, *Improving consumer confidence: Research report on serious defects in recently completed strata buildings across New South Wales* (Report, 2021) <https://www.nsw.gov.au/sites/default/files/2021-10/Serious defects in residential apartments research report.pdf>.
[3] Construct NSW 2023 strata survey (unpublished).

2023, 204 serious defects were discovered during these inspections, with 68 relating to fire safety.

In a late 2023 audit blitz of 21 building sites across Sydney and Wollongong carried out by NSW Fair Trading, more than half of the sites were discovered to have defective fire safety systems.[4] These audits spanned building classes 2, 3 and 9c, demonstrating that fire safety system defects are prevalent in residential apartments, student accommodation, and places where vulnerable people reside, including boarding houses and aged care facilities.

In addition to the cumulative failure rate across fire safety systems, particular issues found during audits include:

- failure of fire safety system designers to integrate their designs with other design practitioners to deliver a holistic compliant system,
- designs not meeting BCA requirements,
- failure to consult with Fire and Rescue NSW (**FRNSW**) on the development of performance solutions,
- builders and installers failing to build in accordance with declared designs, and
- product substitution without sign off by design practitioners.

Failure to design, build and certify fire safety systems and requirements in a compliant way is unacceptable. Examples globally, such as the 2017 Grenfell Tower fire in London, have shown the effects a failure of appropriate fire safety systems can have on building occupants, including death, injury and property destruction. While the risks to human life have not been quantified, the cost of remediating these defects is becoming increasingly expensive – with the costs often passed onto unsuspecting future owners.

In NSW, the cost of building defects is estimated at $622 million annually, with the bulk of costs borne by residential building owners.[5] It is estimated that the average cost to remediate serious defects in class 2 buildings is over $330,000,[6] with recent analysis by the Regulator estimating the cost to rectify defects could be as much as $75,000 per unit in class 2 buildings. These costs are spread across a building's critical building elements rather than fire safety systems alone. However, with fire safety system defects being the second most frequent type of defect, it is safe to say that there are significant costs being imposed

[4] NSW Fair Trading, 'Defective fire safety systems revealed during NSW Fair Trading blitz' (Media Release, 13 October 2023) <https://www.nsw.gov.au/departments-and-agencies/department-of-customer-service/media-releases/defective-fire-safety-systems-revealed-during-nsw-fair-trading-blitz>.
[5] CIE, *Building Confidence Report: A Case for Intervention* (Report, July 2021) <https://www.abcb.gov.au/sites/default/files/resources/2022/Building-confidence-report-case-intervention.pdf>.
[6] Construct NSW, *Improving consumer confidence: Research report on serious defects in recently completed strata buildings across New South Wales* (Report, 2021) <https://www.nsw.gov.au/sites/default/files/2021-10/Serious_defects_in_residential_apartments_research_report.pdf>.

on unsuspecting building owners due to defective design, installation, certification and maintenance of these systems.

Calculating the cost of remediating fire safety system defects is further complicated as remediation is often required not just through normal defect identification processes, such as inspections under the Strata Building Bond Inspection Scheme, but through annual fire safety inspections and development control orders. The maintenance obligations on fire safety systems often exceed other building elements, making the cost of getting fire safety systems right from the beginning a critical component of delivering, and then maintaining, compliant buildings.

Gaps in accountability

The Working Group brought together experts across the fire safety industry, State Government agencies and local government to:

- provide building owners and industry practitioners clear information on how to manage and maintain fire safety systems by producing a template building manual,
- outline the roles, experience and qualifications of fire safety practitioners throughout the building lifecycle (design, construct, maintain) to increase awareness and provide an evidence-base to inform reform discussions, and
- identify ways to enhance the trustworthiness of Fire Safety Schedules, Fire Safety Certificates and Fire Safety Statements given their critical role in ensuring that fire safety systems are appropriately installed and maintained.

The Working Group identified that the existing regulatory framework failed to create end-to-end accountability across fire safety, with too many fire safety practitioners working in siloes. These siloes, which are unfortunately common across the entire building and construction industry, have resulted in fire safety systems not being fit for purpose, with the discrete components of the system often meeting compliance but the system as a whole not operating as intended or not being suitably integrated with other systems.

The Working Group called for a single point of responsibility for the integration of the fire safety systems within a building (i.e. active systems, passive systems, fire prevention measures, the fire management strategy and so on).[7]

In addition, regarding whether the building as a whole meets the fire safety requirements of the BCA, the Working Group identified parts of the delivery of fire safety systems that

[7] NSW Government, *Improving fire safety in new and existing buildings* (Report, October 2021), <https://www.nsw.gov.au/building-commissioner/building-and-construction-resources/research-on-fire-safety-reforms>.

involved practitioners who are not competent in fire safety work. These practitioners were either required to work under a generalist licence (e.g. builders undertaking passive fire safety work) or were not required to be licensed at all (e.g. duct installers responsible for installation of components of air conditioning systems that operate as fire safety systems).

The NSW experience aligns with similar gaps in regulatory oversight seen in other jurisdictions, including Victoria. Victoria's 2022 *Investigating Passive Fire Protection Defects in Residential Buildings Report* (**Victoria Report**) investigated the fire regulatory and industry landscape, identifying key concerns and proposing recommendations. While the paper focuses on Passive Fire Protection (**PFP**) systems, the key findings have provided great insight and are consistent with the gaps NSW is experiencing.

The Victoria Report highlighted high levels of non-compliance with fire requirements across all stages of the building lifecycle, with defects identified in the design stage by practitioners engaged to review the designs, to defects found in the construction and installation stage. Additionally, the report identified four key contributors to fire-related defects, including a lack of knowledge of fire safety requirements due to the complexity of systems and products coupled with limited education and training pathways. This is further exacerbated due to the lack of clarity regarding each role's responsibilities, poor construction management practices that lack a holistic approach and uncoordinated processes for testing and verification.

Considering these key findings, the Victoria Report put forward various recommendations including inclusion in the registration requirements for continuing professional development, professional indemnity insurance, financial and other reporting requirements, and a code of conduct to ensure that all builders have the requisite knowledge, capabilities and competencies required. It was also suggested to share the responsibility and liability more equally across practitioners, to reduce role ambiguity, and to introduce a new practitioner category (including sub-categories) be established for PFP practitioners and the necessary resources provided to the Victoria Building Authority for registration and enforcement.

While NSW operates under different rules, the Victoria Report is illustrative of common issues across jurisdictions that require a holistic response.

Proposed new fire safety regulatory framework

How will the proposed framework operate?

During 2022, the Department consulted on the Working Group Report and draft legislation to create a Building Bill and BCE Bill.[8] The *Regulatory Impact Statement - Building Bill 2022 Part 1* detailed that the proposed Building Act would amalgamate the existing competent fire safety practitioners scheme (now referred to as accredited practitioner (fire safety) under the *Building and Development Certifiers Act 2018* (**BDC Act**) (including the Fire Protection Accreditation Scheme)) and the professional engineering scheme under the *Design and Building Practitioners Act 2020* (**DBP Act**) to create a single licensing framework for fire safety practitioners.[9] This included a regulatory impact assessment of the proposed changes.

At the time, it was proposed to retain the design practitioner registration framework under the DBP Act as a standalone registration framework on top of the proposed amalgamated licensing framework. It is now proposed to bring the entire fire safety licensing framework under the Building Act, with a practitioner being required to hold a licence to carry out work on fire safety systems for class 1b, and 2 to 9 buildings. This will include amalgamating the current design practitioner registration framework for fire safety systems within the broader fire safety licensing framework.

Under this system, a practitioner will need a licence to do the following work:

- declare a design for a fire safety component and system (covered by this paper),
- prepare a performance solution report relating to a fire safety requirement (covered by this paper),
- install a fire safety system,
- holistic commissioning of the building's fire safety system,
- certify a fire safety system,
- test an active fire safety system post-completion, and
- undertake maintenance, repair or remediation on an active fire safety system or repair or remediation on a passive fire safety system.

The proposed framework for the installation of a fire safety system would seek to use existing licence classes where appropriate, with practitioners seeking to do fire safety work

[8] NSW Government, *Reforming building laws in NSW* (Web Page, 2022) <https://www.haveyoursay.nsw.gov.au/reforming-building-laws>.
[9] *Regulatory Impact Statement – Building Bill 2022 – Part 1 Who can do the work* (Report, August 2022) <https://www.haveyoursay.nsw.gov.au/75583/widgets/379760/documents/238449>.

required to either secure a standalone fire safety licence class or secure a fire safety endorsement on their existing licence.

For example, a practitioner with a plumbing licence is authorised to do work connected with the supply or conveyance of water. This licence is currently issued by the Regulator. Under the proposed reforms, this practitioner will need to secure a licence with the Regulator for their underlying plumbing licence (as the work they are doing is plumbing work) and then pass a competency assessment to undertake work on a fire hydrant and hose reel, with both the licence and endorsement for fire safety issued by the Regulator.[10]

Practitioners carrying out the installation of fire safety systems will be discussed in further detail in the next paper, which will be released in early 2024.

In addition to the proposed regulation of the discrete parts of the design, installation, certification and maintenance process for fire safety systems, it is proposed to establish a more holistic approach to fire safety design and installation. The focus would be to ensure greater cross-disciplinary integration between the roles of engineer, designer and contractor to ensure there is a single point of responsibility for the integrity of the building's fire safety system.

To support this, it is proposed that a design compliance declaration and building compliance declaration model will be required for fire safety systems for class 1b and 2 to 9 buildings. The design compliance declaration will be required before a construction certificate (**CC**) or complying development certificate (**CDC**) is issued for building work to commence and a combined testing declaration required to be provided before the building can be certified for occupation.

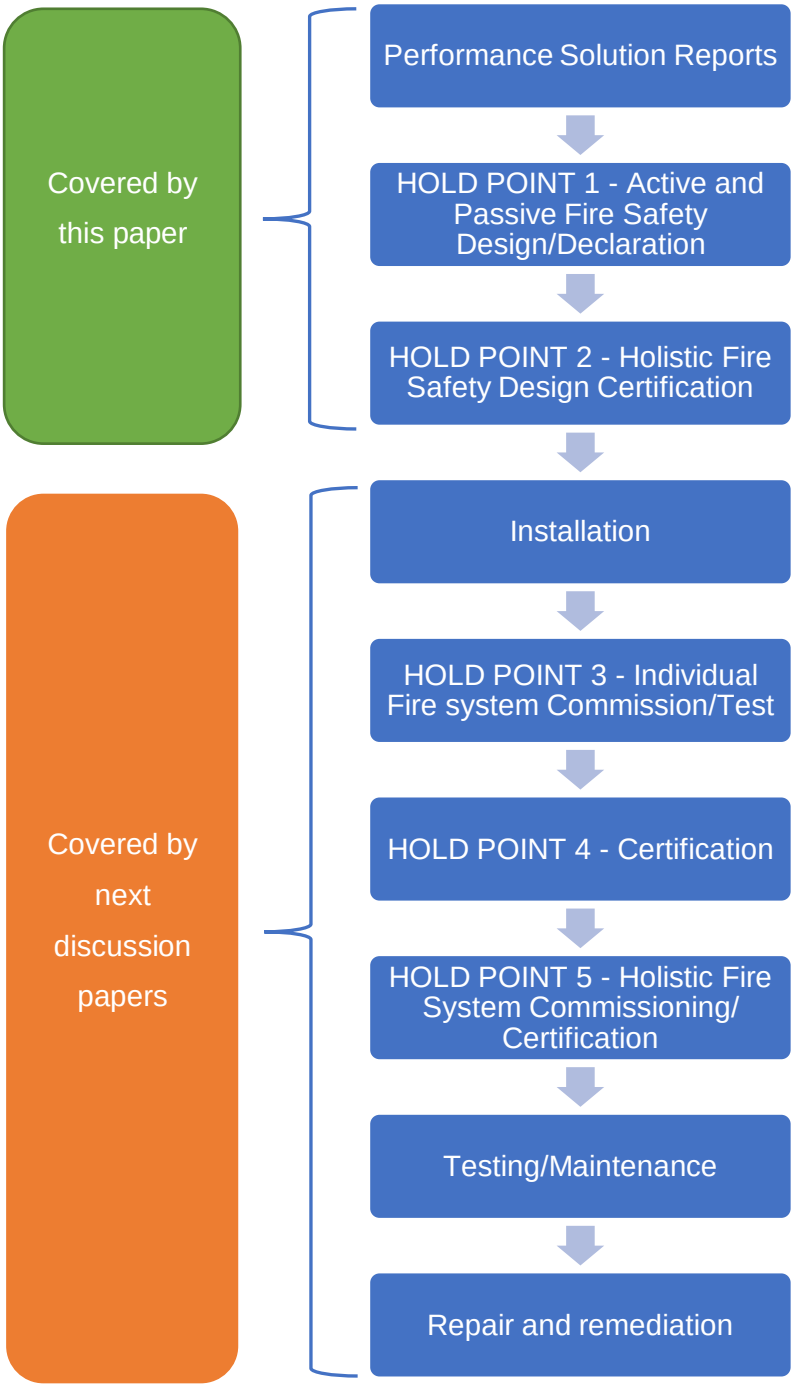
These declarations will ensure that fire safety systems work from design to installation and building owners/operators have the necessary level of information they need to safely operate and maintain the fire safety system. Holistic fire safety system design is discussed further in this paper, with holistic fire safety system installation discussed in detail in the next paper.

Finally, the proposed reforms would look to clearly define the role of different government agencies in the fire safety sector. In doing so, it is proposed to clearly detail the responsibilities of the Regulator, local councils, FRNSW and the Rural Fire Service. This

[10] For more information on proposed reforms to the licensing framework, please review previous circulated papers *Building Bill 2023 - Licensing Proposals A review of building licensing and registration in NSW* (June 2023) and *Proposal for co-regulation in building and construction Industry consultation paper* (November 2023).

includes moving existing components of the planning framework out of the planning system and into the new Building Act.

Proposed fire safety framework



Questions

1. **What gaps in the current regulatory framework do you consider could impact the proposed model that could compromise fire safety?**
2. **Do you have any overarching comments on the proposed approach to fire safety licensing that could help inform the development of the model and further discussion papers?**
3. **Should the new licensing requirements be applicable to all classes of buildings (except for class 1a and class 10 buildings/structures)?**
4. **What regulatory burden impacts should be considered before the fire safety regulatory framework is finalised?**

Proposed fire safety design framework

What fire safety systems will be regulated?

It is intended to regulate a building's fire safety system, which is a catchall term used in this paper that seeks to cover the critical fire safety components, design features, and systems that go into a building and describes the holistic operation of these to manage fire safety risks. To achieve this outcome, a clear definition is needed of which components of the building's fire safety system will be regulated.

Currently, the *Environmental Planning and Assessment (Development Certification and Fire Safety Regulation) 2021* (**EPA Fire Regulation**) contains a list of statutory fire safety measures which must be included in a fire safety schedule, among other fire measures, for a building.

The purpose of the list of statutory fire safety measures is to identify those fire safety measures in a building that are subject to commissioning and regular maintenance. The list is often used by industry as the accepted list of required fire safety measures, due to the absence of any other prescribed list. This also means that not all fire safety systems are captured by these requirements. The Working Group identified that there is an opportunity to review the statutory fire safety measures in light of advancements in technology and approaches that are becoming more commonplace.

It has also become evident that some fire safety measures listed are not clear. For example, automatic fail-safe devices can be interpreted differently throughout the industry. Some believe they are electromagnetic door holders while others treat them as mechanical trips, or fusible links. Although during maintenance they can be separated in the fire safety schedule, for design it is imprecise, and the fail-safe will always be attached to some other system or measure.

The list below shows the key fire safety systems that are captured by the NCC. It is proposed to regulate the practitioners involved in the design of these systems. Defined lists for key fire safety systems will be prepared for each paper covering installation, commissioning, maintenance, and testing of fire safety systems.

Fire safety components/systems
• Emergency lighting • Exit and directional signs • Emergency warning and intercommunication systems/building occupant warning systems • Fire hose reel systems • Fire hydrant systems • Fire sprinkler systems including wall wetting and wall drencher systems • Mechanical air handling systems – i.e. *zone pressurisation system (zone smoke control), automatic air pressurisation, automatic shutdown, automatic smoke exhaust system, fire and smoke dampers* • Automatic fire/smoke detection and alarm systems • Smoke and heat vents • Stand-by/emergency power systems • Emergency lifts and fire service controls, recall controls • Fire and smoke rated construction (for tested systems includes all access panels, doors, penetrations and fire protection coatings)

Question

5. **Are there any other fire safety systems that should be included in the regulated fire safety systems list proposed above? (i.e. are there any fire safety systems from the statutory fire safety measures list (such as automatic fail-safe devices) that should be captured?)**

Out of scope

Fire prevention measures and the fire management strategy

It is acknowledged that a fire safety system is made up of active systems, passive systems, fire prevention measures and the fire management strategy.

Fire prevention measures at the design phase are generally more of a fire engineered performance concept. It is understood that some deemed-to-satisfy (**DTS**) provisions under the NCC do have requirements for fire hazard properties of linings and the like, which are preventative measures.

To focus on the more tangible missing pieces, such as compliant passive fire safety designs, fire-resisting construction, incipient spread ceilings, elements that need to be non-combustible and exits and egress paths, this paper will not discuss fire prevention measures or fire management strategies.

This should not be confused with the holistic view of fire safety systems which is mentioned later in the paper.

Deemed-to-satisfy solution

A DTS solution is one of two compliance pathways under the NCC. The DTS provisions are those that are deemed to meet the performance requirements of the NCC by following set procedures of what, when and how to do something from the NCC, which includes materials, components, design factors and construction methods.

If a building is designed to be completely DTS as it follows the set procedures of the NCC, there is no requirement for inspections or verifications from fire safety engineers.

A declaration will still be required for the DTS as this will feed into the holistic fire safety design declaration. The design declaration will ensure a person is held accountable for confirming compliance to the BCA and is the current requirement under the DBP Act.

Bush fire assessors

Another area that will be out of scope for this paper are bush fire assessors. Bush fire is a distinct part of the industry and is governed by the *Environmental Planning and Assessment Act 1979* (**EPA Act**) and the *Rural Fires Act 1997*. A development consent cannot be given for buildings on bush fire prone land unless they have been provided a certificate by a qualified consultant recognised by the NSW Rural Fire Service (**NSW RFS**) or the council is satisfied that the development meets the requirements of the *Planning for Bush Fire Protection* document.[11]

A recognised bush fire assessor can issue a bush fire risk assessment certificate which is used to certify that a proposed development conforms to the specifications and requirements of the NSW RFS document *Planning for Bush Fire Protection*.

[11] NSW Rural Fire Service, Planning for Bush Fire Protection (Report, 2019) <https://www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection>.

Currently bush fire assessors are not captured by the requirements of the *Design and Building Practitioners Act 2020* (**DBP Act**), although practitioners and professional engineers must consider specialist advice in areas that are not within their expertise.

A review of the current regulatory regime for bush fire assessors is not being considered as part of the initial work of incorporating the regulation of fire safety systems into the proposed Building Bill.

Performance Solution Reports

The construction of a building begins with the high-level process of determining how the building will operate. This process determines the relevant class of building, the performance requirements it must meet and the development consent process it is subject to. Critical to this stage of a project is the initial assessment of what fire safety requirements the building will have.

The first stage is to determine the compliance solution approach to meet the BCA requirements i.e., which building elements/systems will follow a DTS solution and which will adopt a performance solution. This process may also require consideration if compliance with a specified provision of the BCA relating to the operational performance of a relevant fire safety system is unreasonable or unnecessary in the circumstances.[12]

Currently, where a performance solution is proposed to meet a performance requirement relating to fire safety, a Performance Based Design Brief (**PBDB**) must be prepared, which will inform the performance solution. The PBDB is developed in collaboration with key stakeholders, including the builder, design practitioners and relevant agencies, such as FRNSW. The PBDP defines the scope and technical basis for analysis and the acceptance criteria for the performance solution. Once finalised, it becomes the platform upon which the proposed design and Performance Solution Report (**PSR**) is developed and relied on throughout the design, construction and maintenance of the building.

A registered certifier must not issue a construction certificate for building work that involves a performance solution unless they been given a PSR prepared by an appropriately registered person. The certifier must also be satisfied that the PBDB was developed following consultation with the Fire Commissioner for class 2-9 buildings. Registered fire safety engineers[13] must prepare PSRs for higher risk buildings specified in the BCA. All other PSRs relating to fire safety can be prepared by an accredited practitioner (fire safety). While, under the BDC Act, registered fire safety engineers are also authorised to issue a compliance certificate under the EPA Act for performance solutions for fire safety involving the design or construction of building work, we understand this is rarely, if ever, done.

[12] Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021, s 74.
[13] A registered certifier who holds a certifier-fire safety class of registration under the BDC Act.

Proposed process for Performance Solution Reports

Under the new framework, it is proposed to establish a single process for the preparation and declaration of PSRs that relate to a fire safety requirement for all buildings.

It is proposed that the existing framework for compliance certificates and PSRs by a registered person will be replaced new framework which requires a PSR relating to fire safety to only be prepared by a licensed fire safety engineer.

The PSR prepared by the licensed fire safety engineer will be required to include the following details:

- relevant plans that show, or specifications that describe, the physical elements of the performance solution, if any,
- a description and justification of the performance solution, including;
    - the acceptance criteria and parameters on which the justification is based,
    - a description of the physical elements of the performance solution,
    - restrictions or conditions of the performance solution, and
    - a copy of the brief on which the justification of the performance solution is based,
- a statement that the performance solution complies with the relevant performance requirements of the BCA,
- information that identifies the DTS provisions of the BCA being varied, where relevant.

The licensed fire safety engineer will now also be required to issue a compliance declaration for the PSR which includes the following matters:

- whether or not the performance solution report complies with the requirements of the BCA (**note** it must comply with the BCA unless a "section 74 exemption" has been secured)[14],
- whether or not other standards, codes or requirements have been applied in preparing it,
- integration with other designs or aspects of the building work,
- details of building products referred in it to give effect to the design and achieve compliance with the BCA,

[14] Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021, section 74, which is proposed to be amalgamated into the new Building Act framework but is referred to here under its existing name for ease of reference.

- whether or not specialist advice from another registered designer or otherwise was sought and considered in preparing it,
- whether or not all relevant recommendation detailed in the Fire Safety Report have been implemented.

This single declaration process will be complemented by a single licence for the fire safety engineer. These changes would be applicable for all classes of building, except class 1a and 10.

Where a PSR forms part of an application for a construction certificate, a registered certifier must apply to FRNSW for an Initial Fire Safety Report (**IFSR**).

Within 7 days from receiving an application for a construction certificate, a certifier must provide the Fire Commissioner with:

- a copy of the application,
- a copy of the relevant building work plans and specifications,
- details of the performance requirements that the performance solution is intended to meet, and
- details of the assessment methods used to establish compliance with the BCA.

The Fire Commissioner may give the certifier an IFSR which may make recommendations.

A certifier must not issue a construction certificate unless they have considered the IFSR. If the certifier does not adopt a recommendation in an IFSR, they must give written notice to the Fire Commissioner specifying reasons.

If the certifier does adopt a recommendation of the report, and the condition can be shown on the plans or described in the specifications, the relevant plans and specifications must be redrawn or annotated. For recommendations that cannot be shown on the plans or described in the specifications, the construction certificate issued can be subject to the conditions prescribed by the Fire Commissioner.

This process has already been implemented following the recommendation of the Working Group and will remain unchanged in the new framework.

Proposed licensing for Performance Solution Reports

An issue that has been identified through previous consultations on the development of the proposed model is the confusion and lack of a clear distinction on the role of fire safety engineers and fire safety practitioners in relation to the design of fire safety systems. While a fire safety engineer will develop a PSR, and this may affect the design, or operational requirement of a fire safety system, they are not responsible for designing the system. A fire

systems designer is responsible for the design of a fire safety system but will have to have regard to the PSR to understand the design requirements of the system.

There is also confusion around the roles and responsibilities of fire safety engineers under the different existing legislative schemes, particularly when interacting with fire systems designers.

Under the Building and Development Certifier Regulation 2020 (**BDC Regulation**), a certifier – fire safety (fire safety engineer) is authorised to prepare a PSR and issue a compliance certificate under the EPA Act for performance solutions for fire safety involving the design or construction of building work.

The Design and Building Practitioners Regulation 2021 (**DBP Regulation**) also includes a class of design practitioner – fire safety engineering. This design practitioner must hold registration as a professional engineer – fire safety and is authorised to make design compliance declarations for PSRs.

There are some differences in relation to the classes of buildings prescribed under the relevant Regulations. The requirements under the BDC Regulation relate to prescribed class 2-9 buildings whereas the requirements under the DBP Regulation apply to all class 2, 3 and 9c buildings.

There are also differences in regard to the qualifications and experience needed to hold registration under each Act. The BDC Act requires a person to be registered on the National Engineering Register as a professional engineer with no additional experience required. Alternatively, the person must hold a degree (other than associate degree) in fire safety engineering from an Australian university and have three years practical experience.

Under the DBP Act, a person must have five years practical experience and must hold either:

- a degree or masters in fire safety engineering, or
- a degree in civil, mechanical, engineering, chemical or electrical engineering and accredited postgraduate diploma in fire safety engineering or NVR approved graduate diploma in fire safety engineering.[15]

The Act also recognises registration pathways for people who are members of an engineering body operating with a Professional Standards Scheme, and members of an engineering body which has been assessed and approved by the Department.[16]

[15] Accredited under the Washington Accord, or assessed as equivalent by Engineers Australia.
[16] Note – there are currently no bodies recognised under either of these pathways.

The development of the Building Bill provides an opportunity to resolve this confusion and prescribe a clear and defined role for the licensed fire safety engineer and the eligibility requirements for registration.

It is proposed that the requirements prescribed by DBP will be the model used for the licensed fire safety engineer role as it provides flexibility in alternative pathways. Consideration can be given to a process for enabling persons to transition into the new licensing scheme if necessary.

Questions

6. **Do you support that PSRs relating to fire safety should only be prepared by licensed fire safety engineers? If not, why?**
7. **Do you have any concerns with the proposed model for licensing fire-safety engineers? If so, what are they?**
8. **Do you support using the qualifications and experience currently prescribed by DBP for fire safety engineers? If not, why?**

Active fire safety systems design

Current building work for a class 2-9 building cannot be commenced on a "relevant fire safety system"[17] unless the system has been designed, including:

- plans that show the layout, extent and location of key components of the system, and
- specifications that describe the basis for the design of the system and identify the provisions of the BCA which the design is based.

Under the EP&A Act these plans and specifications must be certified with a compliance certificate or endorsed by a suitably registered accredited practitioner (fire safety) to confirm the designs comply with the BCA. The designs also have to be endorsed by a registered certifier that they are satisfied the designs have identified the relevant provision of the BCA correctly.

The design of active fire systems is also currently regulated by the responsibilities imposed on design practitioners under the DBP Act. Registered design practitioners are responsible for preparing designs for fire safety systems and declaring that the designs comply with the BCA. These declared designs are provided to the building practitioner and must be lodged on the NSW Planning Portal prior to commencing building work (in accordance with a CDC or CC). The DBP Act currently applies to class 2, 3 and 9c buildings and buildings with a class 2, 3 or 9c part. For class 3 and 9c, the Act currently only applies to the construction of new buildings, with alteration or remedial work for existing class 3 and 9c buildings due to come into effect on 1 July 2024.

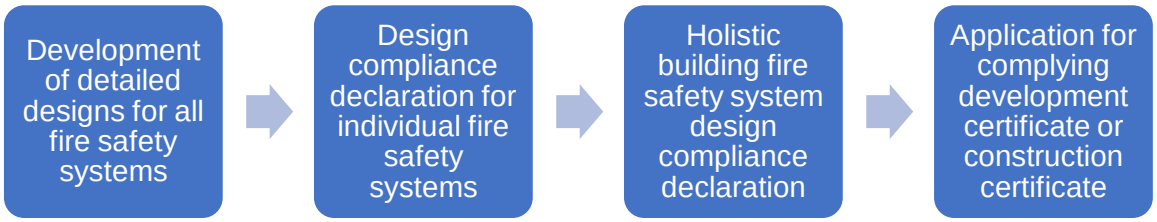
The proposed new framework for the design of active fire safety systems will require licensed fire safety designers to make a compliance declaration for a design they have prepared for an active fire safety system. The designer will be responsible for ensuring their work integrates across the stages of the development and the work of other designers and declare that the work complies with the performance requirements under the BCA.

Fire safety designs would need to be declared by a licensed designer (within their scope of responsibility) for all building classes (other than class 1a and 10 buildings). The designs and the associated compliance declarations for fire safety systems will be required to be lodged as part of the application for the CC or CDC (or prior to work commencing for Crown building projects) to maintain a cohesive set of documents.

[17] Means a hydraulic fire safety system, fire detection and alarm system and mechanical ducted smoke control system.

Once individual designers have declared their designs, this paper later discusses a proposal for ensuring sign off that the integrated designs for each of the fire safety components will produce a holistic fire safety system that meets the performance requirements of the BCA.

This upfront design requirement ensures that if a builder builds in accordance with those designs the building will be compliant with the performance requirements under the BCA. To fulfill this obligation, design practitioners must prepare designs with the necessary detail to produce building work that would achieve compliance with the BCA before building work commences. Designs without that level of detail (i.e. concept designs, shop drawings etc.) must not be declared by a design practitioner and cannot be used by a building practitioner to commence building work.



Proposed licensing for design of active fire safety systems

Imposing an obligation to declare that work complies with the BCA will only be effective if the person making the declaration is competent to assess that the performance of the system meets the requirements of the BCA. Licensing provides an opportunity to impose competency requirements on practitioners before they make declarations – ensuring that the declaration can be relied on by other practitioners.

It is proposed that a person will be required to be licensed by the Regulator to make design compliance declarations for active fire safety systems.[18]

Active fire safety systems will need to have a person with a dedicated fire safety design licence to declare the design. The following classes of fire safety designer are proposed for active fire systems:

Licence class	Proposed scope
Fire systems (fire sprinklers)	Fire sprinkler systems (including wall-wetting sprinkler and drencher systems)

[18] The role of co-regulation is the subject of a separate paper - *Proposal for co-regulation in building and construction: Industry consultation paper* (November 2023). If you would like a copy of this paper, please contact the Department through the details listed at the top of this paper.

Licence class	Proposed scope
Fire systems (fire hydrant and fire hose reel)	Fire hydrant systems Fire hose reel systems
Fire systems (detection and alarm systems)t	Smoke alarm/detection Emergency warning and intercommunication systems
Electrical	Emergency lighting Exit signs (and directional) Standby power systems
Fire systems (mechanical)	Mechanical smoke control systems Smoke and heat vents

It is essential that persons responsible for making design declaration are competent in their field and possess the relevant skills, qualifications, knowledge and experience. It is proposed to leverage off existing licensing requirement and align the eligibility requirements for the licence classes in the above table with the existing requirements under DBP for the same design practitioner classes. The criteria set out under DBP targets the skill set and qualifications needed which are unique to each licensing class. However, the final set of eligibility requirements will be the subject of a further consultation once the scope of each class has been settled, with the DBP scheme providing a useful starting point for this consultation.

Questions

9. **Do you support that active fire safety designs should be declared by licensed design practitioners? If not, why?**
10. **Do you agree with the proposed licence classes and their proposed scope?**
11. **Should the classes of fire sprinklers, hose reels and hydrants be merged into one fire safety (hydrant) class?**
12. **Do you support using the same eligibility requirements under the DBP Act for these licence classes? If not, what would you change?**

Passive fire safety systems design

Passive fire safety refers to the use of construction elements and components to prevent or delay the spread of fire and/or smoke to other parts of the building or protect the building from the external impacts of fire. Passive fire safety also includes other static fire safety features, components, materials or systems used in a building to restrict the spread of fire and smoke and provide safe evacuation. A visual representation of examples of passive fire system systems are shown in Appendix 2.

Some examples of passive fire safety are:

- fire hazard properties of materials and linings,
- fire-resisting construction (walls/floors/ceilings), fire/smoke compartmentation, and bounding construction, including protection of openings in these elements,
- fire-resisting shafts such as for exits, lifts or services,
- fire-stopping of service penetrations,
- light weight fire-protection of structural elements, and
- the egress system in a building.

For the purposes of this paper, “passive fire safety” is intended to encompass broadly the building elements intended to provide fire or smoke separation i.e. walls, floors, ceilings – including protection of services and openings through these elements, and fire-resisting structural elements.

It is proposed to categorise these as separate passive systems to capture design and installation, being:

- fire and smoke resisting elements, including fire compartmentation and bounding construction design, and protection of openings and services through these elements,
- structural fire-resisting elements, such as concrete slabs, beams, and columns,
- opening protection, such as fire resistant doorsets, smoke doors, fire shutters and lift landing doors, and
- ducts and dampers (that do not form part of a mechanical system)

While there are other important passive fire safety measures that must comply with the BCA and be appropriately designed, installed and maintained it is not intended to further regulate these at this time with additional registration and declaration requirements. This includes measures such as:

- the building's egress system (where DTS) e.g. travel distances, paths of travel, stairway and ramp construction,
- vehicular access for large-isolated buildings,
- fire hazard properties of materials and linings,
- bush fire construction,
- class 1a passive fire safety – fire separating walls, and
- fire control centres and rooms

It is considered that the current assessment by the building certifier at complying development or construction certificate stage is appropriate to assess the design of these measures and ensure BCA compliance.

Currently the DBP Act requires regulated designs for fire resisting building elements for class 2, 3 and 9c buildings. This has partially addressed the gap for passive fire safety system design which has fallen into a grey area of responsibility. However, there continues to remain a significant gap for other classes of building in ensuring that the designs of passive fire safety systems meet the governing and performance requirements of the BCA.

The gap for ensuring compliant design of passive fire systems has been partially covered by the role that the registered certifier plays under the BDC Act. When issuing a CC or CDC, a registered certifier must consider the supporting information such as plans, specifications and PSRs for fire safety systems and their compliance with the BCA. However, a lack of certainty around the required level of design detail required before a certifier can issue a certificate is resulting in inconsistent outcomes.

To ensure the gap is sufficiently addressed for the design of passive fire systems the following options are being considered. It is proposed that the designs for passive fire safety systems will be required across all classes of buildings (other than class 10 buildings) ensuring that these systems conform to the requirements of the BCA. Class 1a buildings will be captured but have a limited scope of requirements.

Option 1 Designs to be declared by design practitioners

Option 1 proposes that there will be a requirement for licensed designer practitioners to declare designs for defined passive fire safety systems.

If this option was preferred, a definition of passive fire safety systems would be used to limit the types of passive systems that would require a design declaration. For example, it could be limited to a building element that is required to have a fire-resistance level under the BCA

or a floor or ceiling that is required to have resistance to the incipient spread of fire under the BCA.

A licensed design practitioner preparing designs for passive fire safety systems will be required to include details on the fire/smoke compartmentation of the building. It is proposed that this design will form part of the fire safety requirements in the building and a builder cannot vary the design (including undertaking work that penetrates fire rated walls, ceilings and floors) without having that change designed and declared by a licensed designer. This will allow the builder, as part of their building compliance declaration/hand over to include a standalone fire compartmentalisation design to the building owners to equip them with the level of detail required to make informed decisions about what renovation/remediation work they carry out in the future without compromising the integrity of the passive fire safety system.

Designs prepared by licensed design practitioners will need to be harmonised and integrated with designs prepared by other designers. Design practitioners will have a positive obligation to integrate details of related fire safety work and other designs into their own designs. There are identified complexities when designing fire safety systems in particular where there are crossovers with designer classes. For example, where an architect is preparing a design and the concrete floor slab requires a fire resistance level (**FRL**), the architect could determine the minimum FRL required for the concrete slab, however, the design of the concrete slab would need to be done by a structural engineer with these design fire requirements located in relevant engineering design standards. Integration will require change in industry but must happen.

This process is particularly important for architectural/building design plans which must coordinate the designs for active fire safety systems and services that are required to penetrate walls, ceilings and floors that are fire rated. Consideration should be provided up front for these services and the respective plans should reflect that. This will minimise the need for variations once building work commences.

This option provides synergies with the active fire safety systems process making new requirements simpler to understand.

It is proposed that the design declaration for a passive fire safety system will be the responsibility of relevant design practitioner classes for architect, building designer, and relevant classes of engineers, as required. Where passive protection requirements form part of an active design (for example, the smoke control system under AS1668.1 includes passive protection requirements), the designer for the passive elements would need to

provide a copy of their declaration for those components to the designer of the active system.

For emergency lifts in a building which are captured as passive fire safety systems, the declaration would be provided by the design practitioner – vertical transportation in consultation with other practitioners such as architects, mechanical, structural and electrical engineers.

This option would achieve integration of the active and passive fire safety systems but would also require additional registration requirements for practitioners in buildings not captured by the DBP Act. While this would not completely extend the DBP scheme requirements to these classes of building, a significant portion of the work would not be required to comply with the DBP scheme. This would add additional time and cost to the delivery of non-class 2, 3 and 9c buildings.

Option 2 Design details to be prescribed and considered by certifiers

This option would require certain designs to be prepared for a passive fire safety system, such as a standalone fire/smoke compartmentation design. The design would form part of the mandatory requirements that a certifier would need to consider before issuing a CC or CDC.

Prescribing these designs will assist in maintaining the integrity of the passive fire safety systems, in particular for any future renovations and reducing any potential damage to fire rated walls or ceilings.

It is proposed that the designs would require minimum levels of detail clearly identifying all elements in the building required to be fire or smoke-resisting and the minimum required level of fire-resistance for each element (including whether they need to be concrete or masonry). Plans would also be required to clearly detail bounding construction and fire or smoke compartments within a building and include details on the proposed fire stopping measures.

This option has the least impact on the industry and forms part of current processes for certifiers. Further consideration and consultation with industry would need to be carried out before the list of designs is finalised if this option was preferred.

Option 3 Third party declaration of the design

This option expands on option 2 where a design is to be prepared and considered by a certifier for a passive fire safety system. This option takes it one step further and requires a third-party independent certifier to declare compliance of the design.

Having an independent registered certifier that is not the same as the certifier issuing the CC or CDC alleviates issues such as conflicts of interest or self-interest possibilities.

This option imposes more stringent requirements which can also impact costs to consumers. It would need further consideration to understand potential impacts in regional areas and the availability of registered certifiers to provide the independent declarations for fire safety systems.

Questions

13. **What option do you think should be taken for the design of passive fire safety systems?**
14. **Are there any other alternative options that could be considered for passive fire systems?**

Holistic fire safety design

The Working Group recommended exploring the implementation of a holistic approach to fire safety design and implementation to ensure that the design and installation of fire safety systems was more than the sum of its constituent components but created a fire safety system that was fit for purpose overall. The Working Group Report noted that this would consider how to forge greater cross-disciplinary integration to ensure a single point of responsibility for the integrity of the entire fire safety system (active and passive) within a building.

Under the new framework, to ensure that the building's fire safety system works as an integrated system, it is proposed to introduce obligations to ensure that the design of the system as a whole, including active and passive fire safety systems, meets the performance requirements of the BCA.

To achieve this the following options are being considered. While these proposals have been presented at a high level, the consultation seeks to further develop these options following initial feedback from industry experts on the benefits, risks and viability of each of the options.

Option 1: Designers responsible for declaring integration with other designs

As previously mentioned in this paper, the proposed framework for active fire safety systems will require a licensed design practitioner to declare that the design complies with requirements of the BCA. This would apply to all building classes (other than class 1a and 10 buildings).

As part of this process, the licensed design practitioner will be obligated to consider other regulated designs prepared by other design practitioners when making a design compliance declaration.

This approach is one way that could achieve the desired outcome of the Working Group, similar to the approach adopted under the DBP Act which has vested responsibility for integration of design work with relevant design practitioners and overall compliance of building/installation work with a building practitioner.

This approach will result in an integrated, end-to-end consideration of the building's fire safety system when making a compliance declaration for the design of individual fire safety systems across all buildings before construction commences.

Option 2: Single designer responsible for declaring integration

Under this option, it is proposed to introduce a requirement for a single practitioner to make a declaration that the building's fire safety system as a whole, including active and passive fire safety systems, meets the performance requirements of the BCA (i.e. principal fire safety system designer). This will help ensure that the building's entire fire safety system has been designed as an integrated system.

To ensure that the practitioner can effectively meet their declaration obligation, it is envisaged that they will be involved from the initial concept design stage of a project all the way through to completion. This will ensure they can support other designers, and those undertaking installation work, to meet their own obligations.

Although this option will help ensure that a single person is responsible to signing off the building's fire safety design holistically, further consultation will be required to determine if any one person has the required skills, qualifications, experience and competencies to carry out the role.

Option 3: Licensed certifier responsible for integration

It is the current role of a registered certifier to consider the designs, plans and specifications of a building for holistic BCA compliance. Fire safety designs for key fire safety systems must be endorsed by an accredited practitioner (fire safety) or registered certifiers (other classes) prior to work being carried out on these systems.

Under Option 3, it will remain as current practice for the licensed certifier responsible for issuing the CC or CDC to be required to holistically review the designs comprising the building's fire safety system for BCA compliance before they issue the certificate.[19]

Providing mandatory requirements and making it abundantly clear that the certifier will be responsible for reviewing all of the designs and plans related to fire safety will ensure that the whole integrated fire safety system meets its performance requirement under the BCA before construction can commence.

Questions

15. **Which option do you support and why?**
16. **Are there any other options that could be considered to provide the holistic view of all fire systems?**

[19] Building and Development Certifiers Regulation 2020, s 64.

17. For option 2, what skills, qualifications, experience and competencies would a principal fire safety systems designer need to carry out the proposed function?

Appendix 1 – Current regulatory framework

Design

The EPA Fire Regulation outlines the meaning of a 'relevant' fire safety system for the purpose of obtaining planning certificates prior to building work beginning. Relevant fire safety systems are hydraulic fire systems (automatic fire sprinkler, fire hydrant, and fire hose reel systems), fire detection and alarm systems, and mechanical ducted smoke control systems.

Accredited practitioners (fire safety) and certain registered certifiers carry out regulated work under the BDC Act during the design phase of a fire safety system. These practitioners are responsible for endorsing plans related to CC or CDC's for BCA compliance of a relevant fire safety system. They are also responsible for endorsing the non-compliance provisions of the BCA relating to the operational performance of a relevant fire safety system.

Fire safety design practitioners such as design practitioners – fire systems and design practitioners – fire safety engineering are registered under the DBP Act. They are authorised to prepare regulated designs, including performance solution reports, for fire safety systems in class 2, 3 and 9c buildings and declare that the designs comply with the BCA. The designs and declarations must be lodged on the NSW planning portal before work commences.

Installation and Commissioning

Builders working on class 2, 3 or 9c buildings may be building practitioners registered under the DBP Act for the purpose of making a building compliance declaration covering the installation of fire safety systems.

Tradespeople who carry out residential building work and specialist work including the installation of fire safety systems are licensed under the HB Act. For example, the installation of fire hose reel systems is carried out by a water plumber licensed under the HB Act.

Electricians installing electrical based fire safety systems must submit a Certificate of Compliance for electrical work (CCEW) under the *Gas and Electricity (Consumer Safety) Act 2017* (**G&E Act**). A completed CCEW must be submitted within seven days of completing and safety and compliance tests on electrical installations including fire safety measures such as automatic fail-safe devices.

The Plumbing and Drainage Act 2011 prescribes that plumbers installing water-based fire safety systems must complete a Certificate of Compliance (**CoC**) and submit it to the

building regulator at the completion of the installation. The CoC confirms the plumbing work complies with the Act, the Plumbing and Drainage Regulation 2017, the Plumbing Code of Australia and the requirements of AS/NZS 3500.

The Environmental Planning and Assessment Regulation 2000 puts an onus on owners of buildings and dwellings to ensure that smoke alarms are installed in accordance with requirements of the EPA Act.

Certification

Under Part 6 of the EPA Act, CC and CDC's are issued before construction begins and provide an early form of certification, as they assert that the plans and specifications of a building, including its fire safety systems, will comply with the BCA.

The EPA Fire Regulation prescribes requirements for interim or final fire safety certificates to certify each essential fire safety measure required in the building. The fire safety certificate must accompany the application for the occupation certificate (**OC**). The assessment process includes inspection and testing and is sometimes referred to as commissioning the system. Compliance certificates may also (optionally) be issued prior to the development of building designs, or prior to building work beginning.

Under the EPA Fire Regulation, certifiers must not issue a construction certificate for fire safety work that involves a performance solution unless the certifier has obtained, or been given, a performance solution report and is satisfied the report was prepared in accordance with the BCA. Where a performance-based design brief for a proposed performance solution relates to a class 2-9 building, the designer must consult with the Fire Commissioner and consider any comments made before the performance solution is implemented. If the certifier chooses to disregard a recommendation in the fire safety report provided by the Fire Commissioner, they must give written notice specifying reasons. If the certifier does adopt a recommendation of the report, they must redraw the relevant plans and specifications, annotate the plans or specifications, or issue the construction certificate subject to the conditions prescribed by the Fire Commissioner.

The BDC Act establishes a framework for the accreditation of approval authorities to carry out regulated work. Regulated work under the BDC Act includes the issuing of fire safety certificates, assessing measures for Fire Safety Statements, and functions for fire safety engineers such as the signing off of building work that incorporates a performance solution prior to an OC being issued.

Building practitioners registered under the DBP Act must declare whether or not the building work complies with the NCC. They must take into account the fire safety certificate when completing this declaration.

Testing

The EPA Act and EPA Fire Regulation prescribes the need for fire safety systems to be tested by an accredited practitioner (fire safety) who prepares a Fire Safety Statement. Building owners are responsible for the maintenance of fire safety systems and must organise for their fire safety systems to be tested annually. Accordingly, the Fire Safety Statement must be issued each year and sent to the local council and includes all the fire safety measures that apply to a building. The Fire Safety Statement also verifies that an accredited practitioner (fire safety) has inspected and confirmed that the exit systems in the building are in compliance with the EPA Fire Regulation. A copy of the Fire Safety Statement must also be sent to the Fire Commissioner along with the Fire Safety Schedule.

Accredited practitioners (fire safety) and certain registered certifiers are responsible under the BDC Act for carrying out ongoing testing of fire safety measures in buildings.

Maintenance

The EPA Fire Regulation prescribes the requirements for the maintenance of essential fire safety measures, and annual fire safety performance assessments to be lodged with the local council and FRNSW.

Accredited practitioners (fire safety) and certain registered certifiers are responsible under the BDC Act for assessing fire safety measures for ongoing operational performance. Owners must ensure the ongoing maintenance of fire safety measures in buildings.

Maintenance work on fire safety systems that affects the load-bearing components of a building requires the production and declaration of regulated designs under the DBP Act in the same way required for work completed during the installation phase.

Tradespeople carrying out maintenance work on fire safety systems may be licensed under the HB Act. For example, a builder licenced under this Act may install access panels, doors and hoppers to fire resisting shafts.

The maintenance of electrical fire safety systems is carried out in accordance with the G&E Act.

The *Strata Schemes Management Act 2015* prescribes that some strata schemes must get a Fire Safety Statement each year from a Fire Protection Association Australia accredited

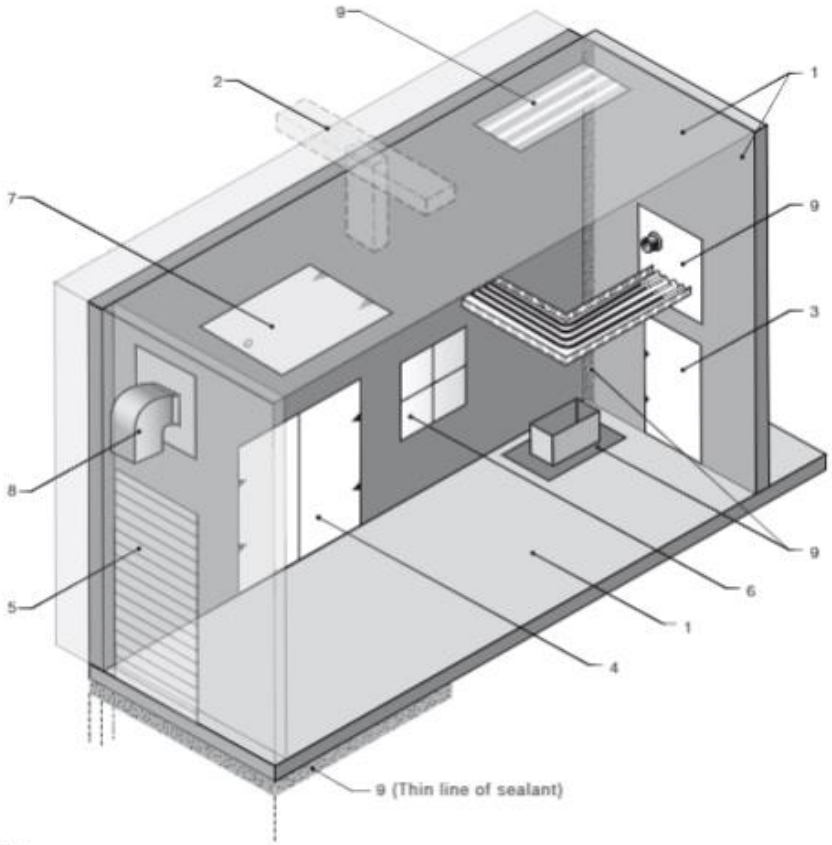
practitioner. Where the FSS is required, the owners corporation should report on the FSS at each annual general meeting.

Vertical transportation products must be authorised in accordance with the Work Health and Safety Regulation 2017. People with management or control of lifts, escalators and moving walkways have duties to ensure they are regularly inspected and maintained so that they operate safely.

Appendix 2 – Passive fire system elements

Figure 12.1 from AS 1851-2012 provides an example of fire and smoke compartment showing passive fire and smoke protection systems.

Passive fire and smoke systems are illustrated in Figure 12.1.



LEGEND:

1 Fire and smoke elements
2 Structural fire-resistant elements–beams, columns, trusses
3 Fire-resistant doorsets
4 Smoke doors
5 Fire-resistant shutters
6 Fire-resistant glazing
7 Access panels and hatches
8 Ducts and dampers (see Clause 12.4.4 for dampers)
9 Fire stopping of service penetration and control joints (metal/plastic pipes, electrical cables/conduits/cable tray, construction/control joints and deflection heads)

FIGURE 12.1 EXAMPLE OF A FIRE AND SMOKE COMPARTMENT SHOWING PASSIVE FIRE AND SMOKE PROTECTION SYSTEMS