Protocols for Mitigating Cladding Risk
PMCR Interventions

F.03 – Interventions for Energy Ignitions

Interventions are required to mitigate the risk to life safety posed by the presence of combustible cladding on the facades on Class 2 and Class 3 Victorian buildings.

The Victorian Government has developed a method for:

- assessing the risk presented by combustible cladding; and
- introducing targeted interventions to bring buildings to an acceptable level of cladding risk.

The **15** related risk mitigation interventions that may be applied fall into **five** categories:

1. Interventions to suppress fires;
2. Interventions to reduce cladding fuel;
3. **Interventions to address energy ignitions;**
4. Interventions to detect fire and alert people; and
5. Interventions to assist safe egress.

This document provides information about those **interventions designed to address energy ignitions**.

It is designed to assist those assessing a building's cladding risk and deciding how to intervene to reduce cladding risk to an acceptable level.

Version 2
Date: 13 March 2024

Aboriginal acknowledgement

Cladding Safety Victoria respectfully acknowledges the Traditional Owners and custodians of the land and water upon which we rely. We pay our respects to their Elders past, present and emerging. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life. We embrace the spirit of reconciliation, working towards equality of outcomes and an equal voice.

Application of Minister's Guideline 15

These documents contain information, advice and support issued by CSV pursuant to Minister's Guideline 15 - Remediation Work Proposals for Mitigating Cladding Risk for Buildings Containing Combustible External Cladding. Municipal building surveyors and private building surveyors must have regard to the information, advice and support contained in these documents when fulfilling their functions under the Act and the Regulations in connection with Combustible External Cladding on buildings:

a) which are classified as Class 2 or Class 3 by the National Construction Code or contain any component which is classified as Class 2 or Class 3;

b) for which the work for the construction of the building was completed or an occupancy permit or certificate of final inspection was issued before 1 February 2021; and

c) which have Combustible External Cladding.

For the purposes of MG-15, Combustible External Cladding means:

a) aluminium composite panels (ACP) with a polymer core which is installed as external cladding, lining or attachments as part of an external wall system; and

b) expanded polystyrene (EPS) products used in an external insulation and finish (rendered) wall system.

Disclaimer

These documents have been prepared by experts across fire engineering, fire safety, building surveying and architectural fields. These documents demonstrate CSV's methodology for developing Remediation Work Proposals which are intended to address risks associated with Combustible External Cladding on Class 2 and Class 3 buildings in Victoria. These technical documents are complex and should only be applied by persons who understand how the entire series might apply to any particular building. Apartment owners may wish to contact CSV or their Municipal Building Surveyor to discuss how these principles have been or will be applied to their building.

CSV reserves the right to modify the content of these documents as may be reasonably necessary. Please ensure that you are using the most up to date version of these documents.

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Document Notes

The Protocols for Mitigating Cladding Risk (**PMCR**) is an approach developed by Cladding Safety Victoria (**CSV**) on behalf of the Victorian Government to consistently and systematically address the risk posed by the presence of combustible cladding on Class 2 and Class 3 buildings.

In particular, the PMCR is focussed on buildings assessed as having a risk rating of elevated[1]. For these buildings, combustible cladding on the facade:

- does not present a high enough level of risk to warrant substantial or complete removal of the cladding; but
- presents enough risk to occupants and the public to warrant a tailored package mitigation interventions to be introduced that provide a proportionate response to the risk.

A set of documents has been assembled to describe the purpose, establishment, method, findings and application of the PMCR. The full set of PMCR documents and their relationship to each other is illustrated in a diagram in Appendix A – PMCR document set and flow.

There are **seven** related streams of technical document in the PMCR document set:

A. Authorisation	Codifies the Victorian Government decisions that enable PMCR activation.
B. CRPM Methodology	Specifies the Cladding Risk Prioritisation Model (CRPM) method used for assessing cladding risk and assigning buildings to three risk levels.
C. PMCR Foundation	Defines the PMCR method, objectives and the key design tasks.
D. Support Packages	Captures the relevant risk knowledge and science-based findings necessary to systemise and calibrate PMCR application.
E. CSV Cladding Risk Policy	Establishes key CSV policy positions in relation to cladding risk.
F. PMCR Interventions	Identifies and describes the interventions that the PMCR method can employ to mitigate risk associated with combustible cladding.
G. Implementation	Specifies the standards and procedures that guide PMCR application.

This current document is one of a suite of PMCR intervention reports that describe how and when targeted risk mitigation interventions are applied to make building occupants safer.

[1] Two other ratings of cladding risk (unacceptable and low) are used to categorise buildings. The assessment principles of the PMCR also apply to these other two cladding risk rating categories.

Abbreviations

Term	Definition
ACP-PE	Aluminium Composite Panel with a polyethylene core
CFSR	Cladding Fire Spread Risk
Cladding cluster	A group of SOUs being connected with combustible cladding as identified by IF-SCAN
CRMF	Cladding Risk Mitigation Framework
CRPM	Cladding Risk Prioritisation Model
CSV	Cladding Safety Victoria
EPS	Expanded Polystyrene
Framework	Cladding Risk Mitigation Framework (CRMF)
FRL	Fire Resistance Level
IF-SCAN	Initial Fire Spread in Cladding Assessment Number
MBS	Municipal Building Surveyor
MG-15	Minister's Guideline 15
NCC	National Construction Code
NFPA	National Fire Protection Authority
PMCR	Protocols for Mitigating Cladding Risk
RWP	Remediation Work Proposal
SOU	Sole Occupancy Unit - as defined in the National Construction Code

Table of Contents

1 Introduction

When a building has combustible cladding on the facade, an **intervention** may be necessary to enhance life safety and reduce cladding fire risk to an acceptable level.

The concentration of risk created by the presence of combustible cladding varies substantially at each building. Accordingly, a decision to **intervene** and the extent of **intervention** required must also vary.

The Victorian Government has authorised the use of **15 interventions** to mitigate cladding risk. The authority for their use is contained in Minister's Guideline 15 (**MG-15**) and supported by the Cladding Risk Mitigation Framework *(***Framework***)*.

The Guideline and Framework are intended to:

- support Municipal Building Surveyors (**MBS**) in rating the cladding risk of a building and determining what level of intervention is required to ensure that the building has achieved an Acceptable Cladding Risk; and
- inform owners about how their building is assessed with regard to cladding risk and the structured way in which Remediation Work Proposals (**RWP**) are developed to bring their building to an acceptable level of cladding risk.

Cladding Safety Victoria (**CSV**) is assisting MBSs and owners by providing information about the cladding risk associated with each building and the steps necessary to remedy that risk. This information is provided in the form of an RWP that applies the cladding risk methodologies developed by CSV over three years.

A threat barrier analysis can be used to represent how risk-mitigating actions can function to respond to a problem. The CSV method employs this analysis technique to identify the central problem (the 'top event'), in this case a cladding fire, and depict how risk associated with the problem can be mitigated through the implementations of barriers (interventions) designed to control the key hazards identified.

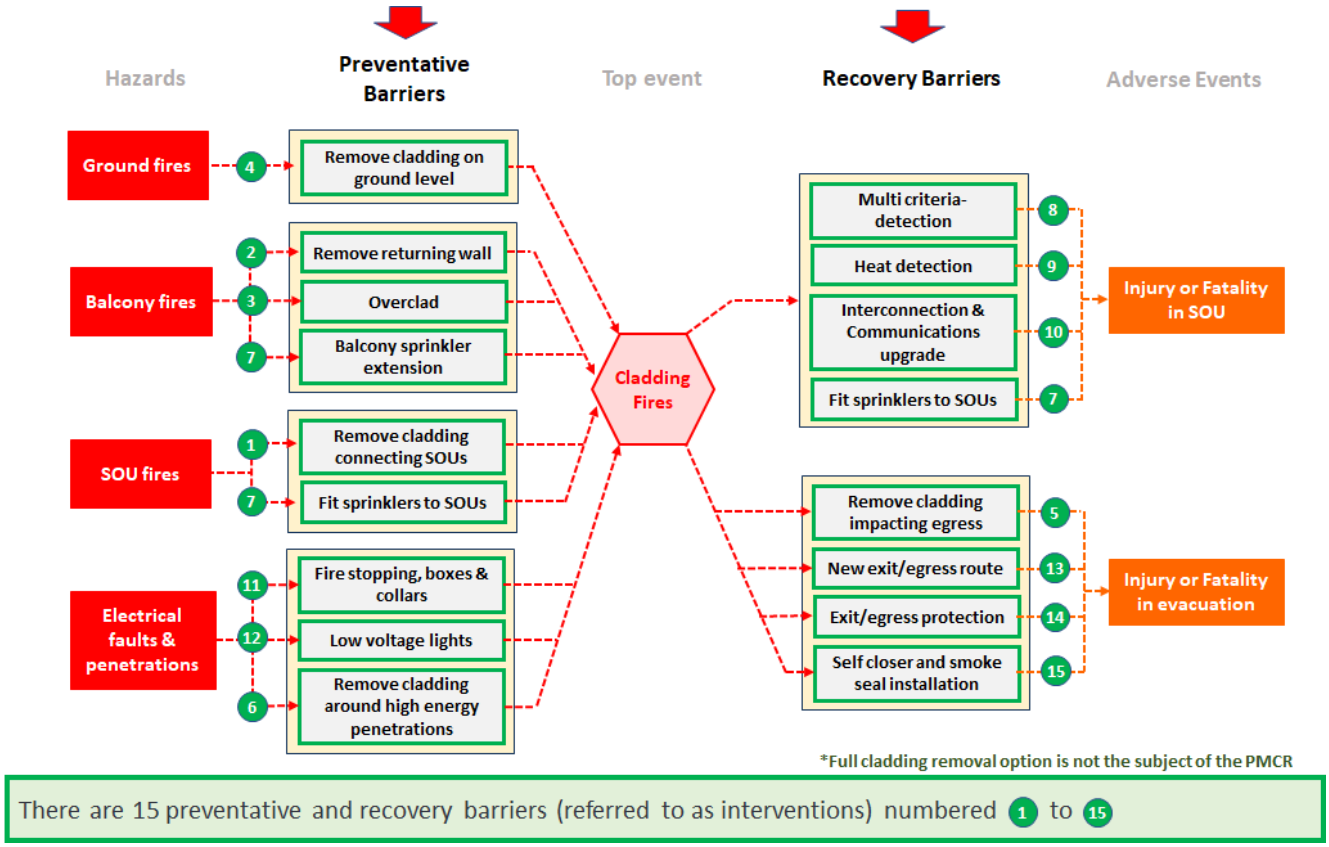


Figure 1: Threat barrier analysis

The 15 interventions in the threat barrier analysis act in different ways to mitigate cladding fire risk.

Each intervention may:

- Respond to one or more of the four identified hazards;
- Function to prevent an ignition source from spreading fire to cladding (i.e. interventions that reduce the likelihood of a fire igniting cladding); and/or
- Function to reduce the adverse impacts for building occupants once a fire has reached cladding (i.e. interventions that reduce the consequences of a cladding fire).

Any risk mitigation solution designed under the Framework must target credible hazards on a building and balance both cladding ignition likelihood and consequence considerations.

1.1 Purpose

This report provides information about interventions that are available to reduce the cladding risk on Victorian multi-dwelling residential buildings (Class 2 and Class 3) to an acceptable level.

The 15 interventions function to reduce cladding risk in one of five discernible ways.

The documentation developed by CSV to support the implementation of the Victorian Government's Framework, includes information to guide MBSs and owners in determining the appropriate circumstances and how to apply particular interventions.

The information is packaged into five related volumes, one for each category of interventions, as represented in the diagram on the right.

In selecting particular interventions, it is important to understand:

- The ignition hazards that an intervention is responding to;
- The benefit to safety of applying an intervention;
- When an intervention is required to be applied; and
- Any considerations that must be made to guide the selection and installation of an intervention.

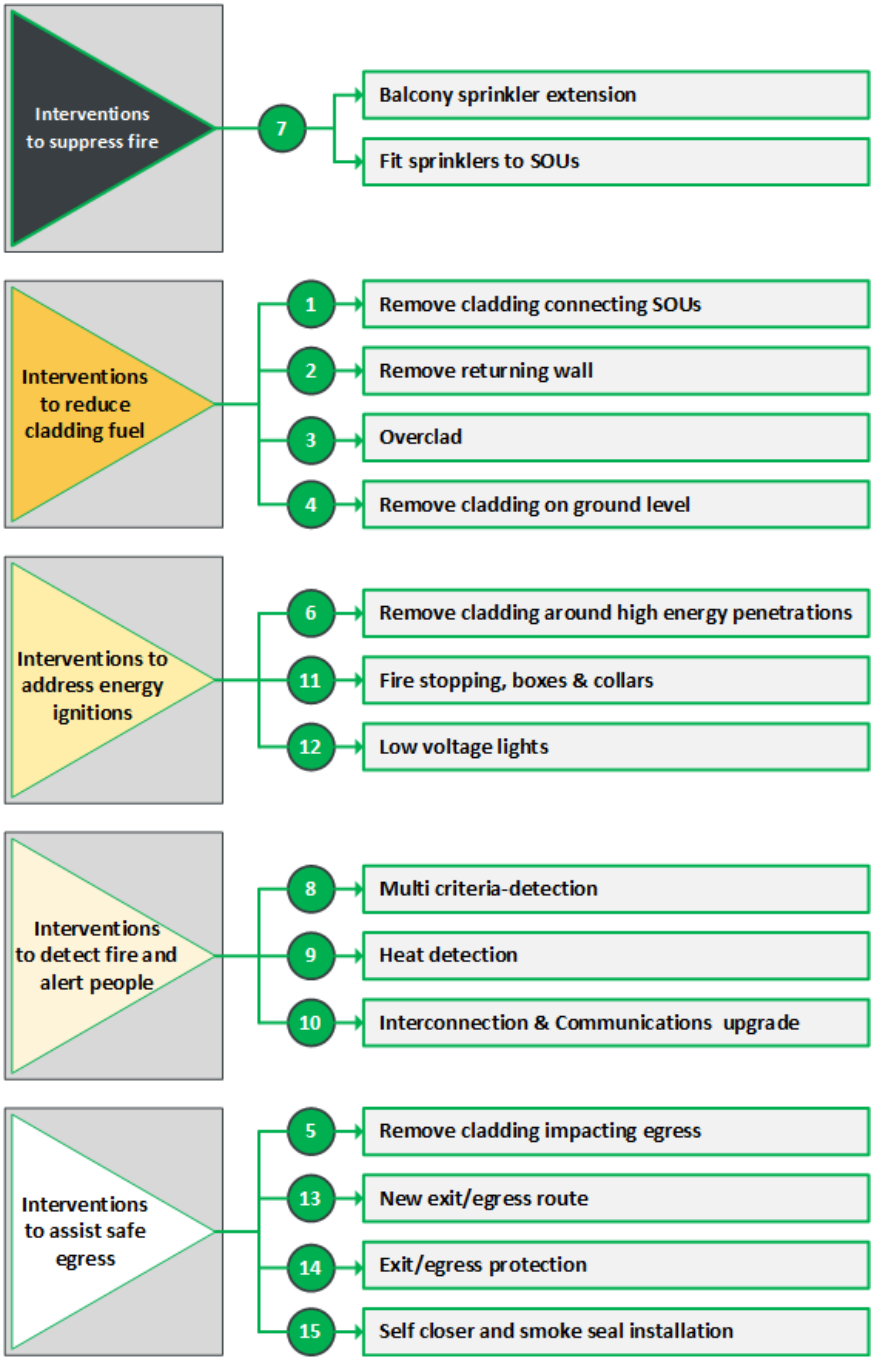


Figure 2: Thematic set of interventions

This report focuses only on interventions to address energy ignitions.

2 Background

2.1 What are the interventions?

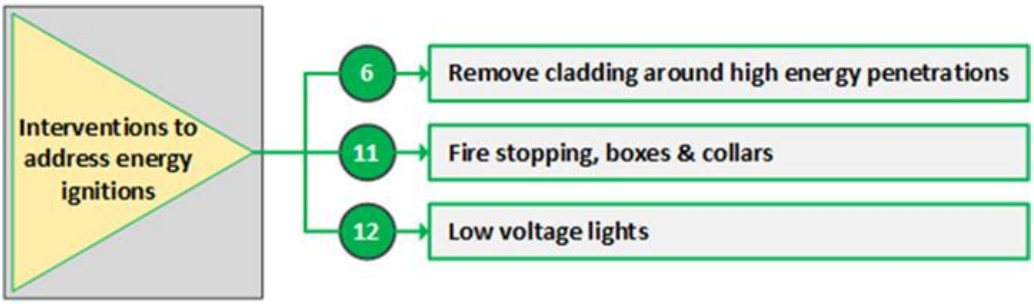
Maintaining the integrity of walls by sealing/treating open penetrations is crucial to ensure fire spread is prevented. The goal of such treatment is to act to:

- Limit the size of fire; and
- Limit the spread of fire.

There are three ways in which treating of energy penetration can be used to mitigate cladding risk under the Framework:

1. Cladding Risk Mitigation for High-Energy Penetrations - **Intervention 6**; and
2. Mitigation Measures for Service Penetration Protection - **Intervention 11**; and
3. Low Voltage Lighting Installation for Safety - **Intervention 12**.

The interventions are further described in Section 3.



A decision to treat penetrations as a potential case of mitigating ignition from high energy sources as part of an RWP for a Class 2 or Class 3 buildings should be considered in the context of:

- The applicable Standards for electrical installation2;
- The National Construction Code (NCC) requirements for wall penetrations; and
- The CSV Cladding Risk Mitigation Policy (CRMP) that informs RWP decisions about when interventions to address energy ignitions are required (consistent with Interventions 6, 11 and 12).

2.2 Hazards and threats addressed by the proposed intervention

One possible ignition risk for cladding is related to the use of electrical and gas-powered devices that have power supply connections penetrating through the combustible cladding.

According to a report by NFPA [1]:

- Electrical failures or malfunctions were found to be a significant contributing factor in almost 80 percent of home fires involving electrical distribution or lighting equipment.
- 32% of these fires start from ignition of electrical wire/cable insulation.
- About one-third of fires originate from building-integrated items like structural members or insulation.

[2] At the time of writing, the applicable standard is AS/NZS 3000:2018, also referred to as 'Wiring Rules,' which states the technical instructions for electrical installations.

Additionally, air conditioners emerge as a significant fire hazard to cladding. This is mainly due to their electrical connections for the condensing unit, which often penetrate through cladding, thus risking exposure of combustible materials to fire in catastrophic scenarios. A Singapore Civil Defence Force report [2] indicates that a majority of air conditioner fires there originated from either the external condensing unit or associated wiring. A parallel situation, albeit to a lesser extent, is observed with barbeque fires. According to research by the National Fire Protection Association [3], a significant portion of barbeque-related fires in the US led to structural fires. This data reflects the potential risk barbeques pose to structures, highlighting the need for safety precautions in their use, especially in proximity to cladding.

The assessment of the ignition risk will be based on the type of appliance/device (such as lighting or air conditioning) and the level of insulation protection provided for the power supply.

The literature review on the standard installation and the potential ignition risk provides valuable information for making informed decisions regarding PMCR assessments.

2.3 Regulatory requirements

The National Construction Code (NCC) outlines specific rules regarding penetrations in walls that are required to have a Fire Resistance Level (FRL).

From the perspective of PMCR, the absence of an FRL in a wall does not negate the need for treating service penetrations or high-voltage lighting interventions. Furthermore, it is required that energy ignition hazards be treated as if the wall had an FRL.

3 Scope of intervention

The primary objective of this intervention document is to present strategies for mitigating the hazards associated with service penetrations and high-voltage outdoor lights. Section 4 of this document outlines the cases this intervention must be implemented as part of the RWP.

1. The **objective** of intervening to mitigate cladding risk under the Framework is to bring each building to a state of Acceptable Cladding Risk (defined term).
2. The report outlines three key interventions:
    a. Cladding Risk Mitigation for High-Energy Penetrations;
    b. Mitigation Measures for Service Penetration Protection; and
    c. Low Voltage Lighting Installation for Safety.
3. The goal is to enhance safety by preventing fire spread through or around combustible cladding.

The method for bringing a Class 2 or Class 3 building with combustible cladding to a state of Acceptable Cladding Risk requires three types of intervention response to be considered. These are represented diagrammatically below.

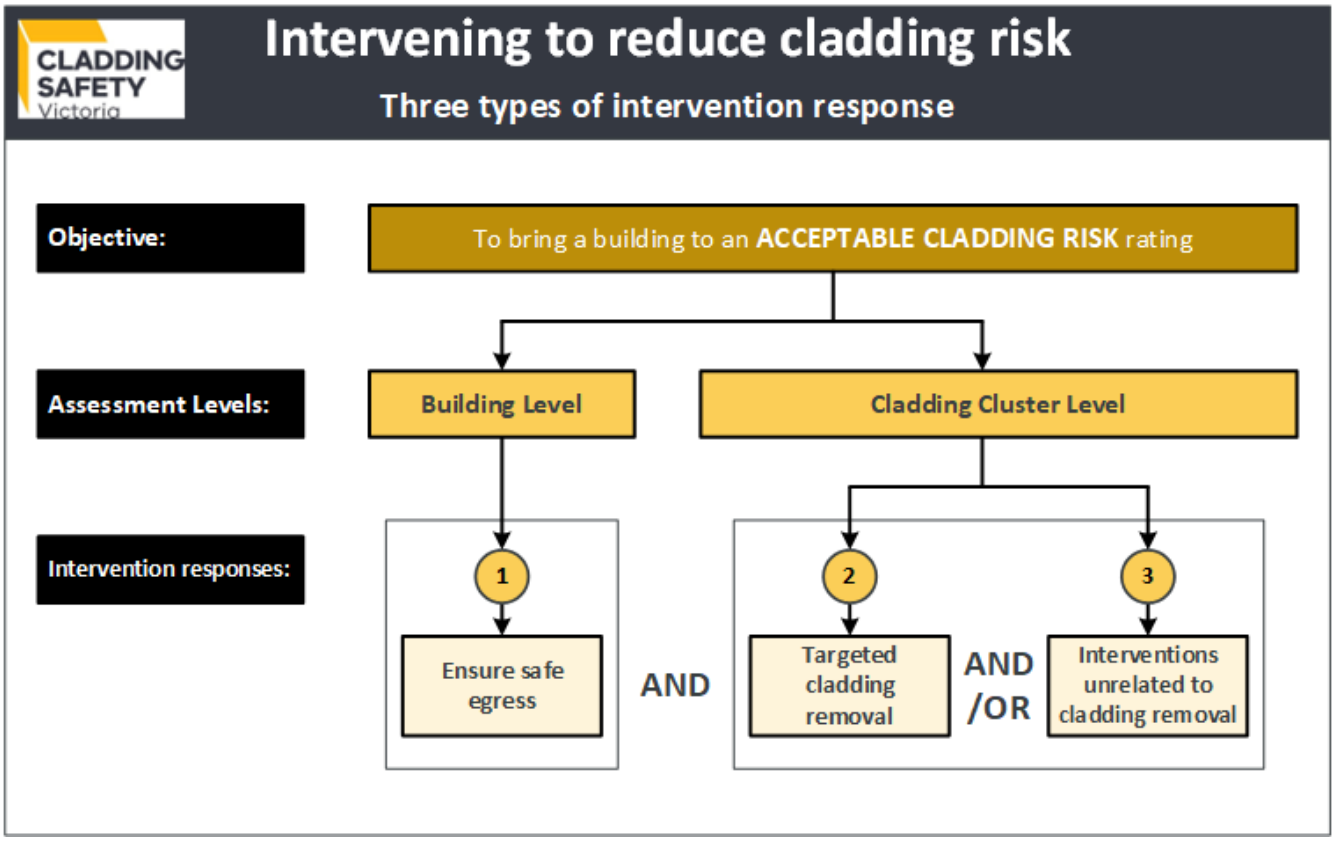


Figure 3: Intervention responses

This Intervention Report is focused on interventions targeting energy ignitions to mitigate risks associated with individual cladding clusters, aligning with the **third** category outlined above. A detailed description of the interventions relevant to this document is provided below.

Intervention 6 - Cladding Risk Mitigation for High-Energy Penetrations

High energy penetrations, as well as high energy units such as air conditioning outdoor units, instantaneous hot water systems and barbeques can catch fire and rapidly become an ignition source for adjacent cladding panels and internal wall systems. Generally, the removal of cladding immediately reduces the risk to a low level. Overcladding, however is also considered as a sufficient alternative to mitigate the risk posed by the fire from high energy unit.

Intervention 11 - Mitigation Measures for Service Penetration Protection

Penetrations through combustible cladding are typically associated with electrical wiring for lighting, air conditioning units (especially the condensing unit), or externally positioned General Power Outlets (GPOs). It's vital to ensure that services passing near or through combustible cladding are adequately protected. This measure ensures that, in the event of a fire, the integrity of the external wall system is maintained, and the spread of fire and smoke through these vulnerable points is prevented.

Intervention 12 - Low Voltage Lighting Installation for Safety

Australia's lighting industry has significantly evolved in recent decades, notably through the gradual phase-out of halogen and incandescent bulbs [4] [5]. This shift, motivated by the pursuit of safer, more energy-efficient, and eco-friendly lighting options, has led to a decrease in the availability of these older bulb types. Although purchasing them isn't illegal, market availability is shrinking due to regulatory measures encouraging the adoption of alternatives like LED lighting. Not only are LEDs safer due to their low-voltage operation reducing electrical hazards, but they also offer greater efficiency and long-term cost-effectiveness. This trend mirrors global movements towards sustainable lighting, aligning with similar initiatives in regions like the EU.

In the context of PMCR, CSV makes it compulsory to adopt low voltage lighting to ensure installation safety. It emphasises the importance of verifying that all lighting-related wiring is in good condition, without signs of aging, exposed wires, or combustible cores, ensuring compliance with Australian wiring regulations. For additional guidance, refer to Section 4.2.1 of this document.

4 Application of the intervention document within PMCR context

Protocols for Mitigating Cladding Risk (PMCR) – CSV Cladding Risk Policy is a strategic approach developed by CSV to address risks associated with combustible cladding on Class 2 and Class 3 buildings in a consistent and systematic manner. It comprises of seven streams of documents outlining the PMCR's purpose, establishment methods, findings, and applications (as shown in Appendix A).

As mentioned above, the PMCR specifically focuses on buildings that are assessed with an "elevated" risk rating, which indicates that while the combustible cladding does not pose a high enough risk to necessitate its substantial or complete removal, it does present sufficient risk to require a tailored package of risk mitigation interventions. These interventions are designed to provide a proportionate response to the identified risk and are delivered by RWP and of interest to:

- Municipal Building Surveyors (MBSs); and
- Owners Corporations (OCs).

The RWP is a pivotal aspect of the PMCR framework, serving as a plan for specific interventions to address cladding risks on buildings.

Interventions to address energy ignitions forms part of a suite of CSV Cladding Risk Policies established to deliver the overarching PMCR narrative.

4.1 When to apply the interventions – policy response

This document applies to only four types of policy responses. The rationale is that any SOU within the cluster lacking sprinklers on the balconies are at higher risk of fire propagation along the combustible cladding. Specifically, the four types of policy responses addressed as mandatory in this document are:

- Elevated risk types: B1 and F
- Unacceptable risk: C1 and G

Table 1: Interventions

Policy Response Type	Cluster Fire Spread Risk (CFSR)	RIS	Cladding Type	Cluster Responses						
				Sprinkler Installation		Detection & Alerting		Penetrations	Or	Cladding Removal
				in SOUs	on balconies	Smoke Detection (bedrooms)	Smoke & heat detection	Remediation of lights, walls, and cladding		Targeted Cladding Removal
B1	3	Up to 4	Both	Existing		✓	✓	✓		✓
C1	4-6	Up to 4	Both	Existing		✓	✓	✓		✓
F	2	ALL	Both			✓	✓	✓		✓
G	3-4	Up to 4	Both	✓		✓	✓	✓		✓

4.2 How to apply the interventions

4.2.1 Lighting remediation

The following should be considered alongside the Interventions table (Table 1 in Section 4.1) to reduce potential fire risk:

- **Lighting replacement:** In the context of PMCR, CSV mandates the adoption of low-voltage LED lighting, which is safer due to its low-voltage operation, as well as more efficient and cost-effective.
- **Outdoor downlights:** it is important that outdoor downlights installed within the soffit void are not covered by insulation.
- **Fireproofing**: for more information see section 4.2.2 Wall remediation.

4.2.2 Wall remediation

Determining when treating penetrations is a preferable solution to cladding removal will necessitate a scenario-based sensitivity analysis. The following factors can help make the decision:

- Is the building sprinkler protected or not, are sprinklers present on balconies?
- What is the cladding material and extent of the coverage?
- Is the wall fire rated or not?

If retaining combustible cladding, the areas that will need treatment to diminish fire potential of penetrations through cladding are outlined below:

- **Electrical wiring** - associated with (but not limited to):
  - ✓ Light fixtures.
  - ✓ Power outlets and switches.
  - ✓ Heating, Ventilation and Air Conditioning (HVAC) Systems.
  - ✓ Building Management Systems (BMS) including fire detection and suppression.
  - ✓ Others such as wiring associated with security cameras, air conditioners, fire alarm equipment and similar which penetrate through combustible cladding.
- **Possible safety measures**:
  - ✓ Install rated boxed with (intumescent) putty behind General Power Outlets (GPOs).
  - ✓ Install flame retardant conduits if running through ACP.
  - ✓ Install grommets – rings of tubes of various material that protect the edges of metal plates or walls where wires and cable go through.

  The installation, as described, should comply with the National Construction Code (NCC) Fire Resistance requirements, ensuring that the wiring is isolated from the cladding. This measure is crucial for mitigating the risk of fire spreading through penetrations.
- **Gaps around penetrations**
  - ✓ Apply fire rated (intumescent) sealant or mortar to protect exposed combustible core.
  - ✓ Apply fire-resistant caulking for smaller gaps.
  - ✓ Apply fire-rated expanding foam, suitable for irregularly shaped gaps or openings.

4.2.3 Cladding remediation requirements around a high energy device

For sprinkler-protected balconies, there are no requirements in terms of cladding remediation around high voltage units as any risk associated with such is considered to be remediated by balcony sprinklers.

For non-sprinkler protected balconies/patios that include permanent high energy devices, a number of options can be considered as described below.

- **Balcony overclad**

  An alternative approach involves overlaying the combustible cladding with a non-combustible counterpart with high thermal inertia such as fibre cement board. For comprehensive information.

- **Cladding removal is recommended if:**
  - ✓ The works associated with replacements and upgrades (as described in sections 4.2.1 and 4.2.2) paired with other interventions are not feasible; or
  - ✓ The cost of the above-mentioned intervention is greater than that of cladding replacement.
  - ✓ If the cladding risk is unacceptable.
- **General rules:**
  - ✓ Overclad behind the high energy unit,
  - ✓ Overclad at least 450mm to either side from the edges of the unit (in horizontal plane)- Figure 4 A,
  - ✓ If one side of the unit is less than 450mm to the wall, overclad the area spanning the width of the unit and additional 450mm in the perpendicular wall – Figure 4B.
  - ✓ Overclad at least 1000mm up from the top edge of the unit (vertical plane) – Figure 4C,

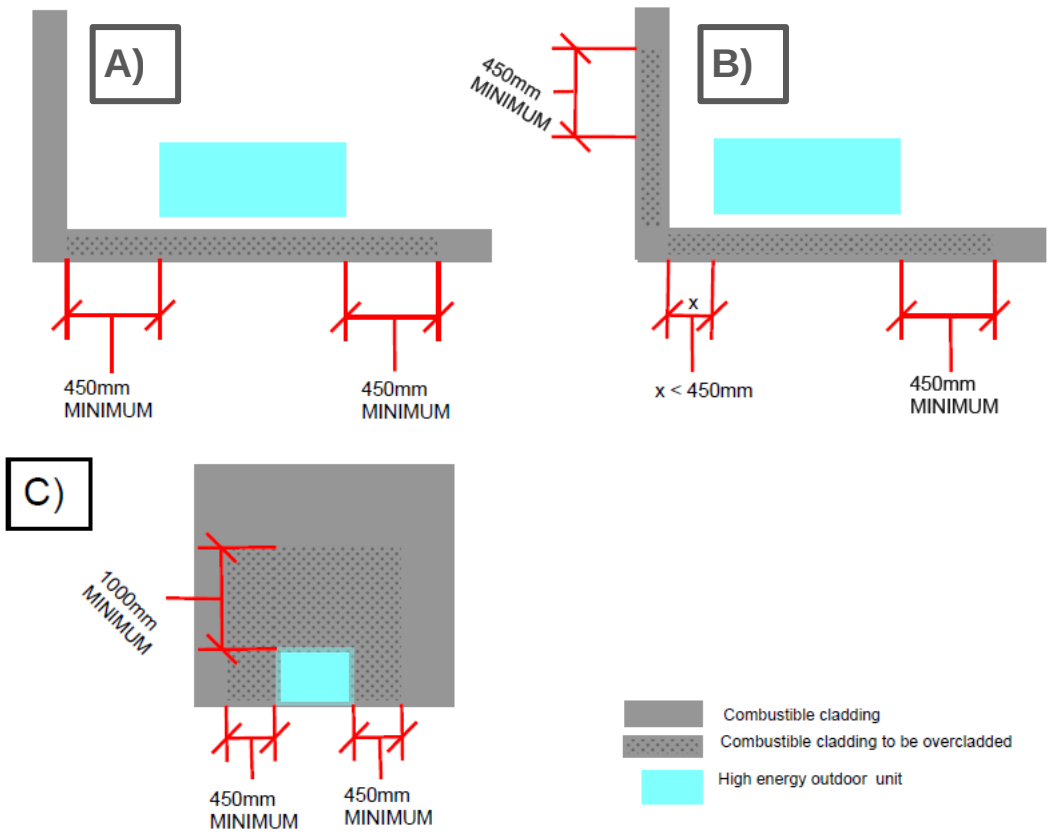


Figure 4. Overclad configurations for high energy units.

4.3 When to apply the interventions

The PMCR combines 15 risk mitigation interventions to reduce cladding risk. Each intervention that forms part of the PMCR risk response model, impacts cladding fire risk in one of five intended ways, as depicted in the diagram below.

It should be noted that interventions for energy ignitions are just one part of the overall response.

For details about the complete intervention response for each cladding cluster type (A, B1, C1 etc.), refer to *G.03 – Cladding Remediation Standards*.

The table below provides a detailed guide on the necessary interventions for mitigating risks related to energy ignitions. It acts as a supplementary extension to the 'Penetration' section of the Standards table found in Appendix B. This table summarises the interventions outlined in this document and should be interpreted and applied alongside the Standards table, as well as in conjunction with other relevant intervention volumes (F.01, F.02, F.04 and F.05) not covered in this document.

Table 2: Required interventions to address energy ignition in policies B1, C1, F, G - standard response overview

	SOUs **ARE** Sprinkler protected		SOUs **ARE NOT** Sprinkler protected	
	ACP/EPS			
Policy Response Type*:	**B1**	**C1**	**F**	**G**
CFSR	**3**	**4-6**	**2**	**3-4**
Interventions to address energy ignitions	**Light remediation: Section 4.2.1** **ACP and EPS** Electrician** must: - Complete comprehensive lighting audit to identify high energy bulbs(e.g., halogen and incandescent(and replace them with low energy alternative(such as LED). - Verify that all wiring related to lighting is in sound condition, without aging signs, exposed wires, or combustible cores. Additionally, refer to Section 4.2.1 of this document for further guidance. - Ensure no insulation within the soffit services void is covering the downlight wiring or components and has sufficient clearance in accordance with AS 3000.			
	Wall remediation: Section 4.2.2 **ACP only:** - Electrician to inspect all wiring-related penetrations, including those for power points and lights, to assess any damage, repairs, and determine if any fire safety or fire-resistant treatments are required around the penetration/cladding. - Electrician to ensure that outdoor power points are equipped with appropriate waterproof covers and inspect the cladding area for any gaps or damage around penetrations that could expose a combustible core.			
	Cladding remediation: Section 4.2.3 **ACP and EPS** - Overclad and/or cladding removal on affected areas is an approved alternative.			

** See Appendix B for the full prescriptive response solution table*

*** A qualified electrician is considered a person that holds an electrician's licence (A Grade)*

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4.4 Non-standard application of this intervention

The PMCR recognises that it may not offer an adequate solution for all buildings or clusters, as it was primarily designed to address the most common configurations. However, the PMCR does accommodate non-standard solutions into the RWP provided they undergo the correct process before implementation. For a building to be considered for such a solution, it must have been thoroughly assessed, including complete markup, assignment of an IF-SCAN, and identification of both building and cluster risk types.

If, after these assessments, it is determined that the risks are not adequately addressed or a more effective solution exists (in terms of risk, cost-time, disruption reduction, etc.), a non-standard solution may be proposed. In these instances, the designer has complete discretion in creation of this solution[3], however a registered fire safety engineer must supervise the solution designer during development of the solution before it can be issued as part of an RWP.

[3] The solution designer must still use PMCR intervention material to design the solution.

5 References

[1] Campbell, R., Home Fires Caused by Electrical Failure or Malfunction. NFPA Journal, 2022. 116(1): p. 72-72.

[2] Singapore Civil Defence Force, “Fires Involving Air Conditioning Fan Coil Units (2008-2014),” Singapore Civil Defence Force. 2015.

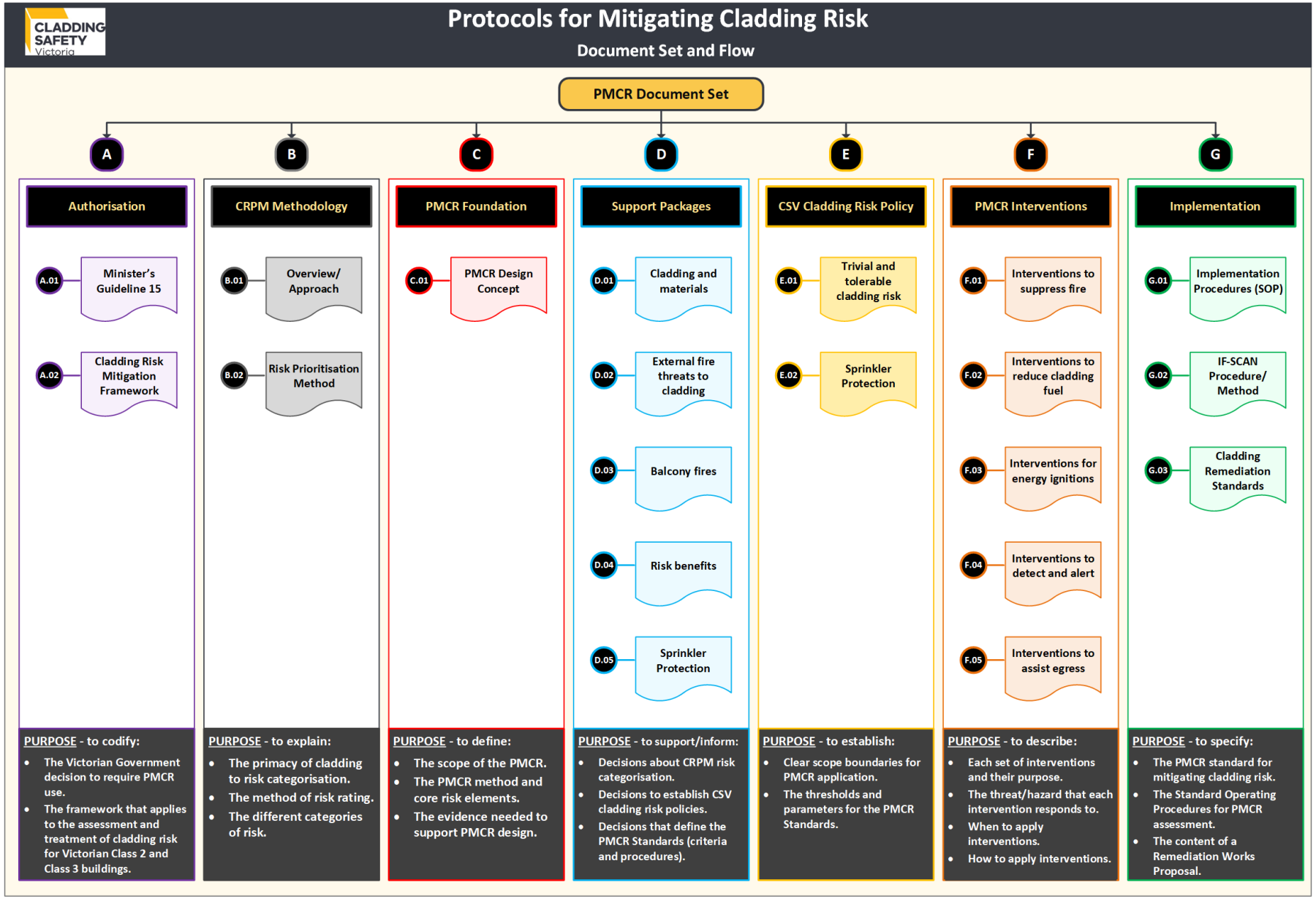
[3] Alideck, “Balcony Fires of Great Britain Report: 2017-2020,” Alideck, 2020.

[4] energy.gov.au (2018b). Lighting | energy.gov.au. [online] Energy.gov.au. Available at: https://www.energy.gov.au/households/lighting.

[5] lightingcouncil.com.au (Feb 2020) (online). Available at: 200210-halogen-phase-out_FINAL1.pdf (lightingcouncil.com.au).

Appendices

Appendix A – PMCR document set and flow



Appendix B – Prescriptive response solutions

Sprinkler Status	Policy Response Type	Cluster Fire Spread Risk (CFSR)	RIS location of the top cluster	Cladding Type	Cluster Responses						
					Sprinkler Installation		Detection & Alerting		Penetrations		Cladding Removal
					in SOUs	on balconies	Smoke Detection (bedrooms)	Smoke & heat detection	Remediation of lights, walls, and cladding		Targeted Cladding Removal
SOUs ARE sprinkler protected	A	0-2	ALL	Both	Existing						✓
	B1	3	Up to 4	Both	Existing		✓	✓	✓		✓
	B2	3	5+	Both	Existing	✓	✓	✓			✓
	C1	4-6	Up to 4	Both	Existing		✓	✓	✓		✓
	C2	4-6	5+	Both	Existing	✓	✓	✓			✓
	D	7+	ALL	Both	Existing					Or	✓
SOUs ARE NOT sprinkler protected	E	0-1	ALL	Both							✓
	F	2	ALL	Both			✓*	✓	✓		✓
	G	3-4	Up to 4	Both	✓		✓	✓	✓		✓
	H	3-4	5+	Both	✓	✓	✓	✓			✓
	I	5+	ALL	Both							✓

Appendix C – Regulations

The installation described above should satisfy the National Construction Code (NCC) Fire Resistance requirements.

1. Relevant legislations

Electricity Safety (General) Regulations 2019: These regulations include requirements and obligations for electricians, employers of electricians, registered electrical contractors, and licensed electrical inspectors.

Standards Australia Wiring Rules, AS/NZS 3000/3013: This standard specifies requirements for the design, construction, and verification of electrical installations, including the selection and installation of electrical equipment. It aims to protect people, livestock, and property from hazards like electric shock and fire.