

**Submission Number: NND.001.00656**

**Submission Of: Ross Murphy**

### Your Details

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Preferred means of contact: Email

What is your submission based on? I am making this submission based on my professional knowledge, qualifications or experience or on behalf of a group or organisation

What is your area of professional expertise?

If you are lodging your submission on behalf of a group or organisation, what is the name of the group or organisation?

### Your Submission

In your experience, what areas of the bushfire emergency response worked well?

See attached submission.

In your experience, what areas of the bushfire emergency response didn't work well?

See attached submission.

In your experience, what needs to change to improve arrangements for preparation, mitigation, response and recovery coordination for national natural disaster arrangements in Australia?

See attached submission.

Is there anything else you would like to tell the Royal Commission?

See attached submission.

Do you agree to your submission being published? Yes I agree to my submission being published in my name

Supporting material provided:

200422 Submission - Bushfire RC combined.pdf



The Commissioner  
Royal Commission into National Natural Disaster Arrangements

Uploaded to Web Portal

23 April 2020

### **Submission - Royal Commission into National Natural Disaster Arrangements**

Thank you for the opportunity to provide this submission to the *Royal Commission into National Natural Disaster Arrangements* (the Commission).

This is a submission based on my experience and qualifications in the area of bushfire protection, fire engineering and building surveying as described in the attached brief CV (Attachment 2.00). My experience has been predominantly in Tasmania.

In summary it is my experience that the primary cause of outrage in the community is where bushfire causes fatalities and destroys buildings. A pivotal mitigation measure is the building and planning approvals for building work in bushfire prone areas. The regulation of development in bushfire prone areas is nationally inconsistent and (in Tasmania at least) poorly conceived.

In particular;

- The integration between planning approvals and building approval is poorly structured and without a national cohesive direction on the separation of roles and responsibilities,
- National consistency is eroding with jurisdictions taking divergent pathways particularly with building approvals,
- There are multiple agencies / authorities associated with policy development, accreditation and enforcement which diminishes the transparency and accountability of actions by government and private practitioners, and
- There is some uncertainty about the objectives advanced and a clear understanding of where government intervention is necessary to require an owner to protect their own property.

It is also considered that the adoption of a framework where more cost effective and efficient development at the urban fringe is preferable. A suggestion is provided where future residential



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zoned land is used to create a buffer in areas of rapid urban development so that there can be more cost-effective construction and better lot yield. This may also provide a disincentive for people seeking to build in remote locations where there is a greater risk to occupants and the responding fire brigade.

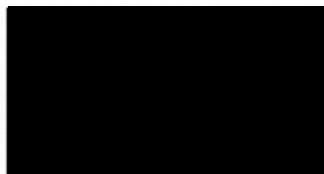
To have successful policy in this area it is felt that it is critical that there is a clear understanding of the roles and responsibilities of the government and the property owner so that there is generally understanding that the property owner is responsible for the preparation of their property and that compliance with the government policy is not an assurance that a particular development will survive a more severe bushfire. The provision of a nationally consistent approach to the regulation of development in bushfire prone areas so that nationally consistent education can be provided will advance this objective.

While governments have attempted to communicate the need for owner / occupier preparation in the past it is apparent that many people do not heed warnings or prepare property and the community (via the media) in the heat of the moment want to blame the government when there is loss. This may be an irrational and emotive allocation of responsibility in many instances and, on reflection after the chaos has past, many owners may accept responsibility for their failure to prepare and to heed warnings.

Attachment 1.00 provides a more detailed discussion of examples of these issues.

Thank you again for the opportunity to provide this submission.

Yours sincerely



**Ross Murphy**

Fire Engineer, Building Surveyor & Bushfire Practitioner



Attachment 1.00

Detailed discussion

Attachment 2.00

Brief CV – Ross Murphy

## ATTACHMENT 1.00 DETAILED DISCUSSION

### Planned Burning Plans and Managed Vegetation for Urban Fringe

Structured planned burning and vegetation management around the urban fringe in faster developing areas would be a valuable tool to allow the development of bushfire strategies that minimises the cost of building work and maximises lot yield at subdivision. The cost reduction would accrue where buildings can be built with a reduced level of bushfire resistance, say ember protection only, where there is a buffer area that can be relied upon.

At present subdivision at the urban fringe requires large lots to allow for significant hazard management areas. However, once another subdivision has occurred and the urban edge has extended, it could be argued that there is a waste of resources in providing resistance to radiant heat in dwellings and an inefficient arrangement of lots where a more efficient outcome could be achieved. Successive subdivision extending the urban fringe further amplifies this effect.

A solution may be to identify future residential area in the planning scheme and make it mandatory for the owners of future residential land to manage this land as low threat vegetation. Planned burning and vegetation management would occur in the future residential zoned land. This could be an enforceable expectation and provide sufficient confidence for adjacent residential lots at the urban fringe to be developed with a reduced bushfire resistance. At the time of subdivision there could be a better lot yield and an outcome where the subdivision is not designed around bushfire protection.

This approach can also act as a disincentive for people to build away from the urban fringe in locations where;

- it is less safe for the responding fire brigade and
- there is no option for occupants to evacuate should it become apparent that they have underestimated the fire threat (for example; dead end roads).

The disincentives for the development of remote structures away from the urban fringe are; that the cost of building work in remote location is greater, there is an increased level of residual risk for occupants as well as the fire brigade and the requirement for land maintenance is greater.

If there is a sensitive environment at the urban fringe where it is not possible to undertake future residential development larger lots would be required with sufficient hazard management areas and buildings capable of reasonably resisting the bushfire threat as if this is the final urban edge. It may also be that this type of development will attract a greater insurance premium in the future as well.

In summary, the definition of areas capable of planned burning and vegetation management in areas of faster developing urban edge as future residential zoned land allows for a more efficient and cost-effective land development which may discourage remote development in bushfire prone vegetation.

## Property Protection Objective

Traditionally it has been the responsibility of the property owner to manage their risk on their property. In recent times the property protection objective has crept into building regulations particular with respect to natural hazards like bushfire. This is not necessary and creates a policy problem with respect to tourist accommodation in bushfire prone areas.

In a performance based regulatory environment the property protection imperative has been incorporated because of concern that a performance solution could be developed where the building is sacrificial if there is a robust evacuation strategy for the occupants. The outcome of this approach could be seen as leading to a systematic reduction in the level of bushfire resistance provided to buildings in bushfire prone areas. This concern is misplaced. Policy could be developed that rationally differentiates tourist accommodation so that there is no reduction in bushfire resistance to dwellings and small accommodation buildings.

For typical dwellings and small accommodation buildings the literature<sup>1</sup> suggests that an owner of a dwelling typically has a low level of adherence to warnings. Consistent with this finding it is anticipated that there would be a low level of compliance with an evacuation plan irrespective of how robust it is. For this reason there is a rational line of demarcation where it can be established that there is insufficient confidence that an owner (or subsequent owner) will evacuate and for this reason (based on a life safety objective) a dwelling should be provided with construction to resist bushfire even if there is a robust evacuation strategy.

In contrast to this, where there is likely to be a more rational and predictable approach to evacuation, and a developer is aware of the risk of property loss and is provided with the opportunity to manage the risk (and this is effectively communicated to successive owners) then a reduced level of property protection may be acceptable. This would allow a developer to build tourist accommodation (for example) with minimal disturbance of the landscape and a wilderness experience where there is a robust evacuation strategy. This would seem to be a way of balancing the competing objectives of environmental protection and bushfire risk mitigation.

The point of difference here would be that the tourist accommodation proposal would be a commercial activity where staff are provided on the site. Where this occurs, the staff are more likely to be dispassionate about the protection of the property in the face of bushfire and are more likely to direct a successful evacuation strategy based on predetermined triggers identified in an approved evacuation plan. Again, the objective is occupant safety.

The third category in this discussion is the provision of small accommodation offering in bushfire settings where there is no staff presence. As there is no guarantee that the guest will understand the evacuation plan, understand how to receive warnings or appreciate the threat of bushfire, it would seem that providing tourist accommodation nested in the wilderness without sufficient hazard

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<sup>1</sup> Whittaker J, Taylor M, Bearman C, – *Why don't bushfire warning work as intended? Response to official warnings during bushfires in New South Wales, Australia* – International Journal of Disaster Risk Reduction 45 (2020) 101476.

management areas would be hazardous for the occupants. If there are no staff on site it is suggested that the building should be fully compliant with construction requirements with no concession for a reduced hazard management area even if there is a robust evacuation strategy. Again, the objective is occupant safety.

Having a property protection objective is not necessary. With the inclusion of a property protection objective it is challenging to develop a rational argument around what is an acceptable level of property protection where a performance solution is being developed for tourist accommodation in a wilderness landscape. There are no acceptance criteria or published guidance material on the development of performance solution where there is an increased potential for property loss such as in a tourist accommodation development. It is recommended that the objectives for bushfire protection should be reframed around the objectives of occupant safety and facilitating fire brigade intervention consistent with the remainder of the National Construction Code so that the anomaly for tourist accommodation (in particular) is removed.

### **Existing Buildings**

The provision of a bushfire strategy for the many existing buildings in bushfire prone areas where the dwelling has not been constructed in accordance with the current prescriptive standards continues to be a significant issue.

Firstly, there is no incentive for an owner to provide an additional level of protection. In fact, there can be a disincentive for the owner of an existing building to undertake alterations and additions to the existing building that could improve protection because there can be a significant cost associated with bringing the entire building into compliance.

In some instances it is not mandatory to bring the existing building up to contemporary standards and there can be perverse situations where (for example) a second storey alteration to an existing non-compliant building means that the upper level is provided with bushfire protection while the lower level has no protection. This doesn't make sense however this scenario is within the contemplation of the existing policy for existing buildings.

A more rational response is to provide some redundancy for the occupants of a notionally deficient building in a bushfire setting instead of forcing occupiers / owners to upgrade the entire building. The response could be in the form of a bushfire bunker near the existing dwelling. While it was identified in the 2009 royal commission that there is a benefit in providing a bushfire bunker option the outcome has been that the Australian Building Codes Board (ABCB) has produced a performance solution for bunkers with no prescriptive option. This means (in Tasmania) that every bunker requires a performance solution which also requires the engagement with the fire brigade for approval.

The outcome of this is that, in Tasmania at least, the fire brigade are not supportive in principle of bushfire bunkers and this has resulted in very few if any bushfire bunkers being approved as bushfire bunkers. It is understood that some individuals are installing bushfire bunkers as wine cellars and that this is a workaround to avoid the approval process.

It is understood and acknowledged that the fire brigade are concerned that the broader acceptance of a bunker as a bushfire strategy could result in a proliferation of bunkers where there could be growing expectation that there would be a reduction in the level of bushfire resistant construction in a new dwelling (for example).

In my opinion the provision of a compliant bunker on a property can offer a substantial benefit particularly where the site is remote from the urban fringe and the occupants have underestimated the location and / or the rate of spread of a fire. If this occurs, and the evidence is that this occurs regularly, government policy should not act as a disincentive for building occupants to provide a measure of redundancy for evacuation on their property, particularly where the existing dwelling has no or minimal bushfire resistance.

To facilitate the outcome, it is suggested that the ABCB should be requested to provide a Deemed-to-Satisfy option for bushfire bunkers to accompany the performance requirements in the NCC so that there is a prescriptive outcome for bunker manufacturer's to follow (consistent with the approach virtually universally provided in the NCC).

To allay the concern of the fire brigade, it is suggested that the policy could be framed around the notion that a bunker can be provided as a measure of redundancy however this does not mean that the provision of a bunker translates to a reduced level of construction to the dwelling (for example).

### **Performance Solutions**

While there has been historically a move to develop a performance solution methodology for bushfire similar to the fire engineering guidelines published by the ABCB this has not eventuated. The outcome of this, in my opinion, is a system where there is a low level of accountability and responsibility where different outcomes can be achieved. Given that the development of performance solution for bushfire is a matter of great significance for the occupants of the building it is strongly recommended that the development of bushfire performance guidelines be prioritised.

### **National Consistency – Bushfire Development Standards**

One of the objectives of the Australian Building Codes Board (ABCB) as well as other jurisdictions (Tasmania at least) is to achieve nationally consistent building regulations. Bushfire protection is addressed in the National Construction Code (NCC) however there are a number of states with major departures to the NCC provisions and there are other jurisdictions where there is no identified variation to the NCC yet there is an alternative policy arrangement which effectively displace the NCC in the area of bushfire protection; see Tasmania. The outcome of this is divergent policy development away from national consistency.

An example of this is that, in Tasmania, there are requirements for bushfire protection to factories in bushfire prone areas where it is understood that there is no requirement in other jurisdictions. The policy for these building (in summary) is that, in the prescriptive provisions, it is necessary to provide; road access, a firefighting water supply and a hazard management area. However, there is no

requirement for the building to resist the radiant heat flux. As such the building is designed to fail when exposed to the design radiant heat flux anticipated on the building.

Conversely there is no requirement (in Tasmania) for a restaurant in a bushfire prone area to have bushfire protection. The process for determining which buildings should be provided with bushfire protection is unclear and not supported by cost / benefit analysis. A move toward national consistency where there is a process for assessing the cost / benefit for policy development would be a substantial improvement on the existing arrangement.

Another consequential outcome of each jurisdiction dealing with bushfire protection in isolation is that policy is becoming significantly more complex. More than would seem to be necessary (and as expressed in the NCC). In Tasmania there are three government agencies responsible for bushfire protection with a complex array of standards to be applied creating uncertainty and ambiguity.

In this submission it is suggested that the jurisdictions should recommit to the development of nationally consistent policy in this area via development of bushfire policy within the NCC and working towards the removal of State and Territory variations.

### **National Consistency – Bushfire Practitioner Accreditation**

Consistent with the issue of inconsistent bushfire standards is the existence of an inconsistent approach to the training and accreditation of practitioners who are required to provide design advice on bushfire risk mitigation. In Tasmania the training is limited to undertaking a two-week training session run by the fire brigade. There is no prerequisite qualification.

There is no additional training required to be able to undertake complex performance solutions however this work is typically undertaken with the fire brigade exercising a high level of design direction while at the same time providing a statutory role in the approval of some bushfire designs.

The suggestion is that a national approach should be developed for bushfire practitioner accreditation where there is an incentive for practitioners to undertake higher levels of study so that they are able to provide professional bushfire solutions in more complex situations.

It is also recommended that a nationally consistent approach be adopted to the development of performance solutions for bushfire protection where a post graduate qualification in bushfire protection is necessary (as is the case in some states). This encourages a higher level of community understanding of issues.

### **Ross Murphy**

Fire Engineer, Building Surveyor & Bushfire Practitioner



**ATTACHMENT 2.00**  
**BRIEF CV**

## Curriculum Vitae

# Ross Murphy

[REDACTED]

[REDACTED]

[REDACTED]

## Key Skills

- Accredited fire protection engineer with 20 years experience
- Accredited building surveyor for 23 years
- Accredited bushfire assessor undertaking performance solutions for 7 years

## Employment History

- 2007 – **Managing Director (Castellan Consulting Pty Ltd), Fire Engineer and Building Surveyor**
- 2006 – 2007 **Senior Project Officer – Australian Building Codes Board**
- 1998 – 2006 **Fire Engineer and Building Surveyor – Pitt and Sherry**
- Prior to 1998 **Various local government appointments**

## Castellan Consulting Mission Statement

Castellan Consulting Pty Ltd (Castellan) provides expert delivery of fire engineering, building surveying and bushfire protection services across Tasmania. The core work undertaken by Castellan is the development and assessment of novel and unique performance based fire engineering solutions for commercial projects. We ensure that there is a level of protection provided that is consistent with the Client expectation while achieving the minimum requirements expressed in the National Construction Code.

## Project Experience – Castellan Consulting

Castellan is the leading fire engineering company in Tasmania and have a consistent and proven ability to provide fire engineering solutions for complex development across all building types and uses. A list of projects relevant to your development can be provided on request.

## Education

- 2009 - 2011 **Graduate Diploma (Bushfire Protection)**, University of Western Sydney, NSW
- 1999 - 2001 **Graduate Diploma (Legal Studies)**, University of New England, NSW
- 1997 - 1998 **Master of Applied Science (Fire Safety Design)**, University of Western Sydney, NSW
- 1995 - 1996 **Graduate Certificate (Building and Planning)**, University of South Australia, SA
- 1982 – 1986 **Bachelor of Applied Science (Environmental Health)**, University of Western Sydney

## Statutory Appointments

2015 - **Resource Management and Planning Appeals Tribunal**, Tasmania

2002 – 2016 **Building Appeals Board**, Tasmania

## Associations

- Member – Australian Institute of Building Surveyors (AIBS)
- Deputy Chairperson – Fire Protection Association of Australia (FPAA)
- Society of Fire Safety - Engineers Australia (EA)
- Member of Australian Standards Committees FP004 (Sprinklers) and past member of FP009 (Hydrants) and FP024 (Residential Sprayers)

As at 6 July 2019