DEFENDABLE SPACE
(Bushfire Management Overlay)

What is defendable space?

Defendable space is an area of land around a building where vegetation (fuel) is modified and managed to reduce the effects of flame contact and radiant heat associated with a bushfire. It usually comprises an inner zone and outer zone. Defendable space is one of the most effective ways of reducing the impact of bushfire on a building.

Cross section of inner & outer zones
Why is Defendable Space important?

Defendable space provides a break between the building and the fuel available to the bushfire (e.g. vegetation, brush fencing, flammable material). Providing an area of defendable space can prevent direct flame contact on a building, reduce the effects of radiant heat on the building and to mitigate the effects of ember attack1.

How do I know how much defendable space I need to provide?

In order to calculate how much defendable space is required up will need to complete a site assessment. You can refer to Practice Note 65 published by the Department of Transport, Planning and Local Infrastructure for further information on the assessment process.

The area of defendable space required will depend on the level of bushfire risk and the likely forms of bushfire attack. The factors influencing the level of bushfire risk include:

- Environmental factors including: fuel, topography and weather conditions
- Site context: (e.g. urbanised or remote location)
- Other bushfire mitigation measures incorporated into the design (e.g. siting of the building and construction standard).


What are the standard planning permit conditions?

If you obtain a permit the standard conditions are the starting point for the level of vegetation management in the defendable space http://www.cfa.vic.gov.au/plan-prepare/standard-planning-permit-conditions/. These requirements should be reflected in your Bushfire Management Plan.

What does compliance with the conditions look like?

1 You should also note that in the event of a bushfire, after the fire front has passed, the area of defendable space may be available as a refuge (refer to advice on preparing your property in Fire Ready Victoria).
The following illustrates an example of a property where an area of defendable space is modified and managed to prevent direct flame contact on a building, reduce the effects of radiant heat on the building and to mitigate the effects of ember attack².


Tree canopy cover - ranging from 15 per cent to 90 per cent at maturity.

² You should also note that in the event of a bushfire, after the fire front has passed, the area of defendable space may be available as a refuge (refer to advice on preparing your property in Fire Ready Victoria).
This diagram shows examples of leaves and vegetation debris which has accumulates to a depth of 1cm and 2cm respectively.

**Tailoring the defendable space requirements**

If you want to tailor the requirements to suit your site you will need to explain in your BMS how you still meet the following objectives:

- Maintain integrity of building (avoid compromise to building structure)
- Reduce the carry of surface fire (horizontal separation)
- Reduce the carry of a canopy fire (horizontal separation)
- Reduce fuel ladders (vertical separation)

ACCESS REQUIREMENTS
(Bushfire Management Overlay)

Why is access important?

Access from the primary road network to the building needs to be provided and designed to enable occupants of the building safe access and egress in the event of an emergency. Clear access to the water supply may also crucial in the event of a fire.

Properties must achieve certain requirements to allow safe passage for emergency vehicles. Without these requirements, it is possible that an emergency vehicle will not reach a property in the event of a fire.

Who is likely to use the access?

Access will be used by the occupants of the property to access and egress in the event of an emergency. In some scenarios it is anticipated that, CFA fire trucks may need to use the access to reach the building or water supply\(^1\). The majority of CFA’s fire fighting vehicles are designed and manufactured to comply with the Australian Design Rules for vehicles.

\(^1\) Note that you should not rely on a fire truck attending the site in – refer to FRV - [http://www.cfa.vic.gov.au/fm_files/attachments/plan_and_prepare/frk_2013/Section5_Preparing_your_property.pdf](http://www.cfa.vic.gov.au/fm_files/attachments/plan_and_prepare/frk_2013/Section5_Preparing_your_property.pdf)
When does access need to be designed to accommodate CFA vehicles?

You can refer Clause 52.47 and Practice Note 65 published by the Department of Transport, Planning and Local Infrastructure for further information on the different scenarios where CFA access is required on the site.

What are the standard planning permit conditions?

If you obtain a permit the standard conditions are the starting point for the construction standard http://www.cfa.vic.gov.au/plan-prepare/standard-planning-permit-conditions/.

What does compliance with the conditions look like?

**Curves in the accessway** - a minimum inner radius of 10m.

![Curves in the accessway diagram](image)

**Dips in the accessway** - no more than a 1 in 8 (12.5 per cent) (7.1 degrees) entry and exit angle.

![Dips in the accessway diagram](image)

**Average grade** - no more than 1 in 7 (14.4 per cent) (8.1 degrees)
Widths and clearances around the accessway - minimum trafficable width of 3.5m and be substantially clear of encroachments for at least 0.5m on each side and clear of encroachments at least 4m vertically.

Construction of an all-weather surface

Accessway should be constructed of an all-weather surface (e.g. 150mm depth concrete).
**Turning circles** – required where access way is in excess of 100m

**Passing bays** – required where an access way is in excess of 200m
WATER SUPPLY REQUIREMENTS
(Bushfire Management Overlay)

Why is a dedicated water supply important?

Reticulated water supplies may be compromised during major fire events, as was experienced in the Black Saturday fires. The provision of a dedicated water supply, with appropriate volume, access and markings will ensure that, in the event of a bushfire, a property is well equipped to defend against a bushfire if required. It is important that the water supply tank (and outlets) do not combust or melt during a fire event.

How much water is required?

All new development must incorporate a static water supply for fire fighting purposes. The minimum volume of water supply will depend on the intended purpose of the water supply; i.e. whether it will be used for:

- Personal fire fighting (e.g. the occupant of the land); and/or
- Fire authority (e.g. CFA)

You can refer to Clause 52.47 of the planning scheme and Practice Note 65 published by the Department of Transport, Planning and Local Infrastructure for further information on how much water is required and whether fire authority fittings are required.

When is it anticipated that the fire authority will also need to access the water?

In a major fire event\(^1\), you should not rely upon CFA to assist. However in some circumstances firefighters may be available to provide support.

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\(^1\) FRV, page 9
Where it is anticipated that the fire authority will need to connect to the tank, the outlet must be compatible with CFA’s fittings. The water supply also needs to be located within proximity of any accessways and buildings on the property so that it can be reached by the fire authority in the event of a fire. The water supply must include the appropriate signage and identification.

What are the standard planning permit conditions?

If you obtain a permit the standard conditions are the starting point for the construction standard (link to conditions page).

What does compliance with the conditions look like?

Effective volume of water

The water supply needs to be useable in the event of an emergency by occupants of the property or fire fighters. The ability to draw water can be impeded where the water level drops below a certain level and starts to suck air (i.e. creating a vortex). Section 5 of AS 2419 explains how a vortex inhibitor or additional water capacity can be used to overcome this suction issue.

Location of the tank
Water supply outlet, pipe work, valves

Water supply signage – required where it is anticipated that CFA may access the water supply

Water supply signage can be purchased from:

- Reflective Road Safety, 44 Swift Way, Dandenong South, 9706 4646; or
- Papillon Australia P/L @ Knoxfield (ph) 9764 8200
Varying the standard water supply requirements?

CFA may consider an alternative design for static water supply where volume, reliability, access and performance of a system are demonstrated to achieve equivalence to the standard requirements. However, these systems are not generally encouraged. CFA considers that dams and swimming pools are not suitable as an alternative static water supply due to the potential for reduced capacity and water quality (e.g. through silting) in drought conditions.
CONSTRUCTION STANDARDS
(Bushfire Management Overlay)

Why is the construction standard of the building important?

Building construction and design can be used to minimise the impact of ember attack and radiant heat on a building. Construction requirements for buildings are expressed as a Bushfire Attack Level (BAL) as prescribed in AS3959.

What is a Bushfire Attack Level?

A Bushfire Attack Level (BAL) is a way of measuring the ability of a building to withstand attack from bushfire. The form of bushfire attack and the severity will vary according to the conditions on the site. There are different BAL ratings. The following diagram illustrates the predicted bushfire attack and levels of exposure for each of the BAL ratings that may be applied in the Bushfire Management Overlay\(^1\).

Relationship with the building system

The BAL requirements are linked to the building system. The Building Code of Australia contains the overarching objectives and performance requirement in relation to achieving an appropriate construction standard to improve the ability of the building to withstand bushfire attack. The BCA allows an applicant to meet the requirements in AS 3959-2009 (otherwise known as deemed to satisfy response). Alternatively an applicant may prepare an alternative solution to achieve the same performance requirement (i.e. not a deemed to satisfy response).

\(^1\) Note that, whilst under AS3959 a BAL-LOW rating does exist this will not apply in any areas with the Bushfire Management Overlay or Bushfire Prone Areas.
Can the design of the building also increase resilience to bushfire?

In addition to the materials and construction standard of the building, the layout and design of a building can reduce the potential for accumulation of debris and entry of embers. Design should avoid creating spaces where debris can accumulate e.g. complex roof designs. The location of outbuildings should also be considered as they can act as a fuel source to the main building. Outbuildings should be located at least 10m² from the main building.

Note that in a Bushfire Prone Area (under the building system) a 6m separation is recommended, a greater separation is recommended in the BMO given the increase risk of bushfire.

Complex roof designs can be improved to reduce accumulation of debris and entry of embers.
What construction standard do I need to meet?

To establish the appropriate construction standard you will need to conduct an assessment in accordance with Clause 52.47 of the planning scheme.

You can refer to Practice Note 65 published by the Department of Transport, Planning and Local Infrastructure for further information on the assessment process.
RESIDENTIAL SUBDIVISION CONDITIONS
(Bushfire Management Overlay)

The mandatory subdivision condition

Clause 44.06 of the planning scheme requires that a mandatory condition be included in every applicable planning permit. The condition requires a Section 173 Agreement to be entered into which sets out the bushfire protection measures contained in the subdivision permit. The purpose of this requirement is to ensure that at the bushfire protection measures are clearly set out at the subdivision stage. Where the bushfire protection measures contained in the Section 173 Agreement are implemented no further approvals are required to develop the land with a single dwelling under the BMO.

CFA’s approach for standard conditions

CFA’s standard permit conditions set out the specific bushfire protection measures that need to be included in the Section 173 Agreement. These conditions apply to residential subdivisions in the BMO where:

- A detailed Bushfire Management Plan (BMP) has been provided
- The required defendable space is fully contained within the boundaries of each lot – i.e. there is no sharing of defendable space between lots in the subdivision.
- The subdivision does not create communal open space.

CFA expects that the responsible authority will apply the mandatory condition, so the CFA’s standard conditions support and inform the content of the mandatory condition. The standard conditions are as follows:

Additional standard condition will usually apply where there is a sharing / overlapping of defendable space between lots within the subdivision. This additional condition is required to ensure that the defendable space
required for each lot in the subdivision is implemented prior to the occupation of a dwelling commencing on any lot.

**What other conditions may apply to a subdivision in the BMO?**

Depending on the nature of the subdivision, a range of additional permit conditions may be applied. This may include conditions which require:

- The implementation and maintenance of bushfire protection measures for existing buildings (but generally not construction).
- The approval and implementation of management plans for areas of open space within a subdivision.

**How are the residential subdivision conditions implemented?**

CFA’s conditions are implemented through a detailed BMP. The diagrams below show examples of BMP where there is shared defendable space and where there is not. A schedule to the BMO will often be required to specify some of the more detailed bushfire mitigation measures.