Tasmania Fire Service

BUSHFIRE READY SCHOOLS

OVERVIEW & CATEGORIES

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Tasmanian Government

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PROGRAM OVERVIEW

School children are a vulnerable section of our community; schools are a key community asset, often central to a community; and schools and Education Departments have a duty of care to provide a safe workplace for staff and students.

Bushfire-Ready Schools is a Tasmania Fire Service bushfire safety initiative with the objective of achieving greater community resilience to bushfire through supporting education centres in bushfire-prone areas to manage their bushfire risk and prepare for bushfire emergency.

Using a tailored risk assessment methodology and performance criteria; each school is evaluated for its vulnerability to bushfire, and detailed advice is provided to the school on strategies to manage and mitigate bushfire risk.

PROGRAM PROCESS

Summary

The Bushfire-Ready Schools initiative adopts a systematic process, whereby each school is individually assessed for its capacity to resist bushfire attack and provide protection for people sheltering on-site. Tailored bushfire risk mitigation strategies are designed for the site and detailed in the Bushfire Assessment Report. Schools are then supported with implementing these mitigation strategies to achieve improved bushfire safety and resilience outcomes.

Site Assessment

The site assessment process involves an evaluation of bushfire risk at the site; including measurement of bushfire fuels, topography, separation distances, and a thorough inspection of building materials and construction design.

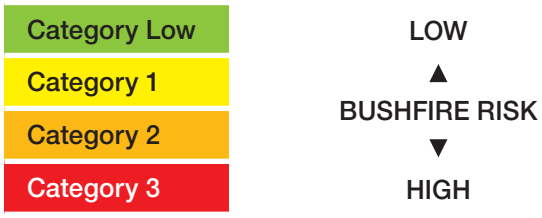
The site assessment process reflects that of a Bushfire Attack Level (BAL) assessment, defined within AS3959-2009 *Construction of Buildings in Bushfire-Prone Areas*. Hence, the degree of bushfire vulnerability at a site somewhat correlates with modelled radiant heat flux, calculated at the building envelope.

It must be noted, however, that the criteria, systems and methodology used to evaluate bushfire-prone sites have been specifically developed by TFS for the Bushfire-Ready Schools initiative. Therefore the simplified BAL assessment method and criteria used by industry for planning and building in bushfire-prone areas is mostly incompatible with that used by TFS for the Bushfire-Ready Schools program.

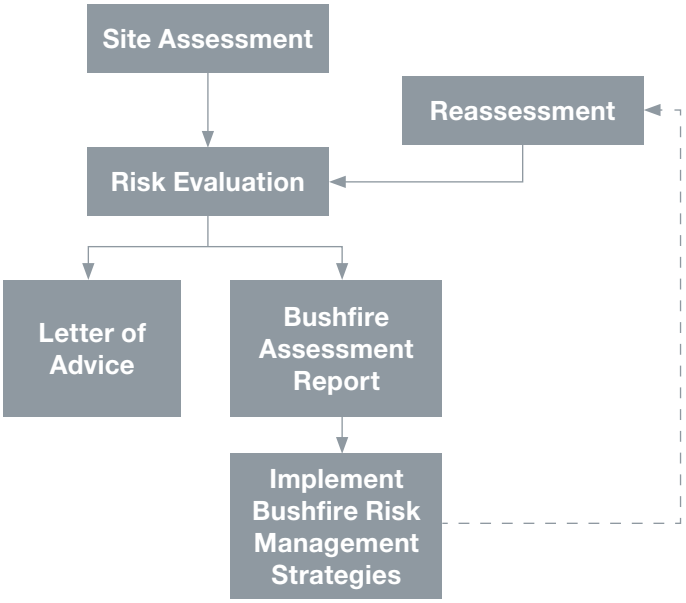
Evaluation

Following site assessment and further analysis, a site's unique bushfire risk characteristics are evaluated against a defined set of assessment criteria. Each school is categorised based on its susceptibility to bushfire attack mechanisms, and capacity to provide shelter from the life threatening effects of radiant heat.

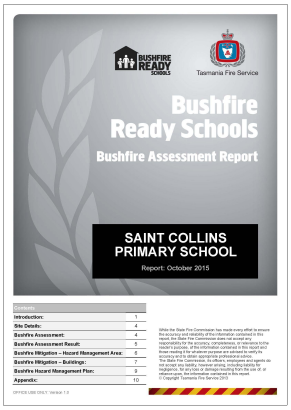
The program defines four (4) distinct 'bushfire-ready' categories, based on science and statistical analysis of bushfire impact in interface zones.



Bushfire-Ready Schools Process



Risk Mitigation and Management



A TFS Bushfire Assessment Report is developed for category 1, 2 and 3 sites. An official letter of advice is provided to category low sites. The bushfire assessment report provides details of the bushfire risk to the site and comprehensive recommendations regarding bushfire fuel management, emergency management planning, and building retrofits for bushfire protection (e.g. ember protection).

The degree of bushfire risk at the site, and the vulnerability of buildings to bushfire attack are clearly articulated within the report.

The bushfire assessment report forms the framework for ongoing bushfire risk mitigation activities, and informs emergency preparedness and response at the school site.

Support

Throughout this process the bushfire assessor engages closely with school principals/management and education department management. The findings and recommendations of the bushfire assessment report are discussed and explained to these parties and ongoing technical advice and support is provided regarding bushfire risk mitigation measures and emergency management planning.

Re-assessment

Following the implementation of key mitigation works; a site will be re-assessed, resulting in an upgraded Bushfire-Ready Schools category.

Recognition

Schools that have participated in the Bushfire-Ready Schools initiative have the option of displaying the Bushfire-Ready Schools logo at their sites; thereby demonstrating to students, parents, staff and the community that the school has taken responsibility for bushfire safety at the site.

PROGRAM OUTCOMES

The Bushfire-Ready Schools program is building community resilience to bushfire by taking a shared-responsibility approach to managing bushfire risk, by supporting schools with emergency management and bushfire preparation.

Key outcomes of the Bushfire-Ready Schools Program include:

- Schools are better informed of their bushfire risk, and better equipped to undertake risk mitigation activities; including building retrofits, landscape management, and emergency planning.
- Schools that are category 2 sites are supported in upgrading to category 1 status, thereby permitting students and staff to safely shelter on site during most bushfire emergencies.
- School children, staff and visitors are safer; and school buildings are more likely to withstand a bushfire.
- The financial, physical and social impact of a bushfire event on the school and wider community is lessened by the implementation of informed pre-planning and protection strategies.

CATEGORIES

The *Bushfire-Ready Schools* category system is designed to inform both the site management and Tasmania Fire Service of the site's level of bushfire vulnerability and preparedness.

The *Bushfire-Ready Schools* category reflects the level of modelled radiant heat impact on school buildings, and will guide emergency management planning, bushfire protection measures, landscaping design, and hazard management area creation.

The following categories are used to define the level of bushfire preparedness of a school.

CATEGORY LOW

Description

Buildings will be safe to shelter in during the passage of the main fire front.

Inherently bushfire safe due to separation distance from nearest bushfire hazard (classified vegetation).

Bushfire Attack Level is Minimal:

- No measureable radiation impact on school buildings from the main fire front
- No measureable radiation impact on people out in the open within schools grounds
- < 0.1% chance of building ignition by embers

Category Low schools may become receiving stations for students relocated from other schools.

Firefighting resources are unlikely to be required onsite to assist with life and building protection.

Smoke and ash may affect Category Low schools.

Criteria

Category Low schools have separation distances >400m from the bushfire hazard, as determined by the bushfire assessment officer.

Recommendations

No dedicated bushfire safety requirements required, other than an emergency plan to respond to bushfire impacting other schools, and to hold students in place if their neighbourhood is threatened by bushfire.

Staff members should patrol the school for potential ignitions, as a precaution.

Capital Works

No capital works recommended.

BUSHFIRE READY SCHOOLS

CATEGORY 1

Description

Buildings will be safe to shelter in during the passage of the main fire front.

Bushfire Attack Level is Low:

- Modelled radiation impact on school buildings from the main fire front <10 kW/m^2
- < 15% chance of building ignition by embers

Fire fighting resources should be provided onsite to assist with life and building protection.

Embers, smoke and ash will impact Category 1 schools.

Criteria

Category 1 schools have separation distances <400m from the bushfire hazard (classified vegetation), but generally no closer than the relevant distance specified in table one; unless otherwise determined by the bushfire assessment officer.

Table One:

Generalised Hazard Management Area Dimensions (set-back)			
Effective Slope	***Classified Vegetation***		
	Dense Forest	**Light Forest *or* Scrub**	**Grass-land**
High Slopes (10° - 18°)	139 m	108 m	75 m
Mid Slopes (0° - 10°)	107 m	81 m	43 m
Flat or Upslope (0°)	76 m	57 m	34 m

measurements address radiant heat flux only.

Recommendations

An emergency plan should be developed to respond to bushfire impacting this school, and to hold students in place if the area is threatened by bushfire.

A landscaping and hazard maintenance plan should be developed to reduce potential ignition points on the exterior of buildings.

Retrofitting to ember-proof buildings should be a long term option.

Firefighting resources and school staff members should patrol the school buildings for potential ignitions, before and after the main fire front has passed.

Capital Works

Buildings should be ember-proofed to reduce risk of ember ignition.

CATEGORY 2

Description

Buildings may not be safe to shelter in during the passage of the main fire front.

Bushfire Attack Level is Moderate – High:

- Modelled radiation impact on school buildings from the main fire front >10 kW/m^2
- Radiation impact on people out in the open within school grounds may be untenable
- >15% chance of building ignition by embers

Firefighting resources should be provided onsite to assist with life and building protection.

Building protection may not be feasible, and may be high risk for firefighters.

Radiant heat, embers, smoke and ash will impact Category 2 schools.

Criteria

Category 2 schools have separation distances <400m from the bushfire hazard (classified vegetation), and closer than the relevant distance specified in table one.

Recommendations

Category 2 schools should have a landscaping and hazard maintenance plan developed to reduce potential ignition points on the exterior of buildings. Once the hazard management area is established, the school may be reassessed and upgraded to a Category 1 status.

Category 2 schools may be suitable to be retrofitted with ember proofing to improve building survivability.

An emergency plan should be developed to respond to bushfire impacting this school. This plan may include strategies for closing the school, or evacuation of students to other bushfire ready schools, evacuation centres, or nearby safer places.

Firefighing resources and staff members (if on-site) should patrol the school for potential ignitions, before and after the main fire front has passed.

Capital Works

Buildings should be ember-proofed to reduce risk of ember ignition.

Fuel management works should be undertaken to create and maintain the hazard management area.

CATEGORY 3

Description

Inherently bushfire unsafe due to separation distance from nearest bushfire hazard, or other safety factors determined by Tasmania Fire Service.

Buildings may not be safe to shelter in during the passage of the main fire front.

Bushfire Attack Level is Moderate – High:

- Modelled radiation impact on school buildings from the main fire front >10 kW/m^2
- Radiation impact on people out in the open within school grounds may be untenable
- >15% chance of building ignition by embers

Firefighting resources should be provided onsite to assist with life and building protection.

Building protection may not be feasible, and may be high risk for firefighters.

Radiant heat, embers, smoke and ash will impact Category 3 schools.

Criteria

Category 3 schools have separation distances <400m from the bushfire hazard (classified vegetation), and closer than the relevant distance specified in table one.

Category 3 schools will not be suitable for re-classification to Category 1 status due to factors such as:

- Creation and maintenance of a hazard management area, of requisite dimensions, is not feasible or practicable
- The siting, construction, access and/or some other factor is considered by Tasmania Fire Service to significantly and adversely impact on occupant safety, and is unlikely to be suitably ameliorated by prescribed mitigation works.

Recommendations

Category 3 schools should have a landscaping and hazard maintenance plan developed to reduce potential ignition points on the exterior of buildings.

Category 3 schools may be suitable to be retrofitted with ember proofing to improve building survivability.

An emergency plan should be developed to respond to bushfire impacting this school, and to evacuate students if threatened by bushfire. This plan may include strategies for closing the school, or evacuation of students to other bushfire ready schools, evacuation centres, or nearby safer places.

Firefighing resources should patrol the school for potential ignitions, before and after the main fire front has passed.

Capital Works

Buildings should be ember-proofed to reduce risk of ember ignition.

Fuel management works should be undertaken to maintain the hazard management area.

DEFINITIONS

Bushfire:

An unplanned fire burning in vegetation; also referred to as wildfire.

Bushfire Attack:

Attack by burning embers, radiant heat or flame generated by bushfire, which might result in ignition and subsequent damage to or destruction of a building.

Bushfire Attack Level (BAL):

A means of measuring the severity of a buildings potential exposure to ember attack, radiant heat and direct flame contact.

Bushfire protection measures

Measures that may be used to reduce the intensity of bushfire attack and the threat to life and property in the event of bushfire.

Bushfire-prone area:

An area that is subject to, or likely to be subject to, bushfire attack.

Bushfire-prone vegetation

Contiguous vegetation including forest, moorland, grassland, and shrub-land but not including maintained lawns, parks and gardens, nature strips, plant nurseries, golf courses, vineyards, orchards or vegetation on land that is used for horticultural purposes.

Bushfire-Ready Schools category

A means of measuring the severity of a building's potential exposure to radiant heat, expressed in kilowatts per metre squared, and is the basis for establishing the requirements of a hazard management area to improve building and occupant survivability.

Classified vegetation

Vegetation that has been classified in accordance with Clause 2.2.3 of AS3959-2009*, Construction of Buildings in Bushfire Prone Areas*.

Effective slope

The slope under the classified vegetation which most influences bushfire attack. Measured over a minimum of 100 metres.

Ember attack:

Attack by smouldering of flaming windbourne debris that is capable of entering or accumulating around a building, and that may ignite the building or other combustible materials and debris.

Fire Danger Index (FDI)

The chance of a fire starting, its rate of spread, its intensity and the difficulty of its suppression, according to various combinations of air temperature, relative humidity, wind speed and both the long- and short-term dryness conditions.

Hazard Management Area:

An area of land around a building where vegetation is modified and managed to reduce the effects of flame contact and radiant heat associated with bushfire.

Separation distance:

The straight line distance measured between the building envelope and the bushfire hazard.

For more information or to organise a bushfire assessment of your school please contact the Tasmania Fire Service.

Free Call

1800 000 699

Email

planning@fire.tas.gov.au

BUSHFIRE READY SCHOOLS

Tasmania Fire Service

To report a fire, call triple zero '000'

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