BUILDING IN BUSHFIRE PRONE AREAS

Building Regulation Advisory Note No. 1 of 2013

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1.0 Changes made by the Building Amendment Regulations 2014

The Building Amendment Regulations 2014 commenced on 4 June 2014 and implemented a number of reforms recommended by a Bushfire Implementation Group comprised of government agencies, local government and bushfire practitioners. These changes have been incorporated in the Building Regulations 2014 that has applied from 1 July 2014.

Amendment of definitions:
- Bushfire hazard management plan
- Bushfire-prone area
- Bushfire-prone vegetation
- Fire hydrant

were required to give effect to decisions agreed by a bushfire implementation group to allow the vegetation on residential zoned land (general residential, inner residential or village) to be omitted from being considered as a hazard in a potential bushfire-prone area.

Bushfire Prone Vegetation

The definition of “bushfire-prone vegetation” now excludes the vegetation on those classes of residential land. The Tasmania Fire Service (TFS) has provided advice that such low threat vegetation creates an insufficient increase in risk to warrant any specific bushfire protection measures for a building. Instead the TFS is engaged in the development of community protection planning, public education, and strategic fuel management programs to assist in managing the low bushfire risk on that residential zoned land.

Note that other vegetated land, that is not zoned as residential, within 100m of the building site such as a private forest or a Crown land reserve, still has to be assessed for its potential hazards to the subject building site.

Fire hydrant specifications in the National Construction Code (NCC)

This change provides that there are no specific performance requirements for fire hydrants in those areas and modifies the requirements of the NCC (see below for applicable NCC sections regarding hydrants). The TFS has advised that public infrastructure provided by TasWater provides sufficient flow and pressure in ordinary circumstances to meet requirements. There is no longer a requirement to conduct flow rate and pressure tests for building applications.

Accepting certification from accredited assessors

A Bushfire Hazard Management Plan (BHMP) and Certificate of a Specialist (Form 55) from an Accredited Assessor, prepared for planning approval, may be relied on by the building surveyor when assessing a building design and the Council Permit Authority will receive a copy of that BHMP for a building permit application. Regulation 16 has been amended by insertion of a new sub-paragraph (3) that clarifies the role of those “specialists” who can report on site conditions (or hazards, such as for bushfire prone areas) and provide certification of those conditions, before any design or building work commences on that site.

Outbuildings exempted from a building permit

In a bushfire-prone area, prescribed types of “exempt outbuildings” are only exempt from a building permit if they are to be situated 6m or more from any habitable building. Otherwise exempting these non-habitable structures would conflict with requirements for building in bushfire-prone areas. See the additional information below regarding the construction standards of outbuildings.
Minor alterations and minor repairs of buildings

The amended regulations include a relaxation for work on a non-habitable outbuilding in a bushfire-prone area, where a building surveyor receives certification that the work will not impose an increased fire risk to a habitable building.

2.0 General Information - Building in Bushfire-Prone Areas

2.1 What is a Bushfire-Prone Area?

The Building Regulations 2014 (as amended) define a "Bushfire-Prone Area" as:

(a) land other than land that is within the boundary of an area shown as being not bushfire-prone on a planning scheme map or on an overlay on a planning scheme map; and

(b) where there is no area shown as being not bushfire-prone on a planning scheme map or on an overlay on a planning scheme map, land that is within 100 metres of an area of bushfire-prone vegetation equal to or greater than one hectare.

"Bushfire-prone vegetation" means:

“contiguous vegetation including grasses and shrubs but not including maintained lawns, parks or gardens, nature strips, plant nurseries, golf courses, vineyards, orchards or vegetation on land that is used for horticultural purposes or is zoned general residential, inner residential or village”.

This means that vegetated land that is either:

- within 100m of the building site, including a private forest, bushland or a Crown land reserve; or
- is not zoned as residential, or is not one of these three types of residential zoned land mentioned in the Building Regulations -

then that land will have to be assessed for the bushfire hazards it poses to the building site.

2.2 Which types of Building Classes must comply?

Construction requirements for bushfire-prone areas came into force on 28 November 2012 in Tasmania. Under the Building Act 2000, Class 1, 2 and 3 buildings and Class 10a buildings associated with those buildings, in a bushfire-prone area, must comply with the specific NCC requirements for building work in designated bushfire-prone areas.

- For Class 1 buildings and associated Class 10 buildings, see NCC Volume Two, Tas 3.7.4.0, 3.7.4.1 and 3.7.4.2
- For Class 2 and 3 and associated Class 10 buildings, see NCC Volume One Appendices, Tas G5.

2.3 What are the applicable construction standards?

The NCC provides for three distinct requirements for new building work in bushfire-prone areas:

1. **Construction** standards of habitable buildings to be in accordance with the Australian Standard AS 3959 Construction of buildings in bushfire-prone areas (2009, Amendment 3). To determine what construction requirements apply to a building, the appropriate Bushfire Attack Level must be determined first, in accordance with the process set out in that Standard; and

2. **Road** design and construction, for evacuation and emergency vehicle access, is to be provided; and

3. **Water** supply for fire fighting purposes is to be provided.
2.4  New building work on existing buildings
Q: Do existing buildings need to be upgraded to new bushfire standards?
A: No. There is no requirement to upgrade the construction standards of those parts of an existing building if they are not being altered. Section 115 of the Building Act applies and it provides that any existing building that was constructed lawfully, complies with the law as of today. This means the construction standard of an existing building in a bushfire prone area does not have to be upgraded to current NCC standards.

- Designers may however wish to discuss with their clients simple ember protection measures of the existing parts, as a voluntary safety measure.
- An existing building’s road access does not have to be upgraded to current NCC standards e.g. to be a Class 4C road.
- An existing building’s fire fighting water supply does not have to be upgraded e.g. to meet NCC Volume Two Tas Part 3.7.4.2 e.g. to install new water tanks or a hydrant.

2.5  New building work on an existing building
If there is new work on an existing building (additions or alterations that require a building permit) then only that new work has to comply with NCC provisions for bushfire risk mitigation, e.g. construction provisions that are contained in AS 3959 appropriate to the assessed BAL level.

- An existing building’s road access and fire fighting water supply do not have to be upgraded to current NCC standards.
- A building that is relocated to a new site that is in a bushfire prone area is to be treated as a new building and made fully compliant with bushfire prone areas provisions and not treated as if it were an existing building on that site.

2.6  Road access and fire fighting water supply requirements
In a bushfire-prone area, compliance with the performance requirements in both Volumes of the NCC require that a new building be provided with road access for emergency vehicles and a fire-fighting water supply for that building (for Class 2 and 3 and associated Class 10 buildings see NCC Volume One, Tas G5.3 and Tas G5.4. For Class 1 buildings and associated Class 10 buildings see NCC Volume Two, Tas 3.7.4.1 & .2).

- The minimum required “Modified 4C Access Road” is a basic all-weather vehicular track.
- A drinking water supply may serve a dual purpose for fire fighting – as long as a minimum of 10,000 litres per habitable building is preserved for use during a bushfire.
- Note that in June 2014, performance requirements of fire hydrants were relaxed.
- See additional details on water tanks at section 4.0 of this Advisory Note.

2.7  Can there be an alternative solution for a design?
Yes, the NCC enables the development of an alternative solution for compliance with the performance requirements of P2.3.4 (as amended) and Tas GP5.1 for a building in a bushfire-prone area. An alternative solution would need to be assessed by the building surveyor and may need a Form 55 (Certificate of a Specialist or Other Person) from an Accredited Assessor of bushfire hazards, or other experts, as part of the assessment process.
2.8 New outbuildings (non-habitable structures) in bushfire-prone areas

NCC Volume Two Part 3.7.4 provides that the performance requirements for a Class 10 building in a bushfire-prone area, that is associated with a Class 1 building, are satisfied by construction in accordance with AS 3959.

- An objective of the Standard includes the reduction in the risk of ignition caused by radiant heat as “bushfire attack” includes embers, heat or flame generated by bushfires, which might result in ignition and destruction.
- Studies of the Canberra and Victorian bushfires have shown that the spread of fire between adjacent buildings (including from outbuildings to a habitable building) were a significant contribution to the level of the fire attack on buildings.
- Outbuildings that are alight can create secondary fires in an adjacent dwelling, so they were first included in the revised 2009 edition of AS 3959.

AS 3959 at section 3.2.3, Adjacent Structures, provides that for a separate garage, not attached to a building that is required to comply with this standard (which is the associated habitable dwelling) then the entire garage must either:

- Comply with the construction requirements of the Standard; or
- Sited not less than 6m “from the building required to comply with this standard” (the dwelling).

If there is no building work proposed on the associated dwelling (main building) then that existing building does not need to be upgraded to meet current bushfire standards (Building Act section 115 would apply).

However, any new building work (e.g. erecting the associated garage) does have to comply with the provisions of that Standard, as the NCC mandates that requirement for any Class 10 associated with a Class 1. This is required as a new Class 10 outbuilding that is closer than 6m, may affect the main building if it catches alight.

Alternatively, any attached structures (such as an attached garage) can be separated from the dwelling by fire proof wall (see section 3.2.1 of the Standard).

For work such as building a new garage, the BAL of the site would have to be determined, and then the construction of the garage (for example, if it were to be of concrete block) would have to be considered (fire resistance level of the masonry determined and the use of a non-combustible roofing material specified).

3.0 Assessment of proposed work in bushfire–prone areas

3.1 What is a Bushfire Hazard Management Plan?

A Bushfire Hazard Management Plan (BHMP) means a plan showing the means of protection from bushfires for a habitable building, that was prepared in a form approved by the TFS. Where Councils have adopted Planning Directive 5 (Bushfire Code), such a plan is mandatory for making a planning application for development and building in a bushfire-prone area.

3.2 Who can create a BHMP?

A list of Accredited Assessors is on the Tasmania Fire Service website

3.3 Can a BHMP be relied on for designing building work?

Yes, if that plan indicates the BAL for the relevant site and the measures for mitigation or management of the bushfire hazards identified.
3.4 Can a Building Surveyor accept a Certificate of a Specialist or Other Person (Form 55)?

Yes, the Director’s Determination on Certificates of Specialists or Other Persons includes a certificate given by an Accredited Assessor (for analysing bushfire hazards) who is accredited by the TFS. A building surveyor can accept a Certificate in relation to a BAL (or their BHMP) from these Assessors if satisfied that the person is accredited, that their report relates to the property and the proposed building work, and the building surveyor is satisfied that the land on which a building is proposed is in a bushfire-prone area, or else it is certified that it is not such an area.

- Fully Accredited Assessors may submit a BHMP to the building surveyor including indicating the BAL of the site and that can be accompanied by a Form 55.
- The Accredited Assessor, as a specialist, can also give their report as a Form 55 in relation to their independent assessment of a design that was prepared by the responsible designer. They may also give certificates in relation to an alternative solution with respect to mitigating identified bushfire hazards (not for construction requirements).

3.5 What is a Bushfire Attack Level (BAL) assessment?

To determine which specific construction requirements of AS 3959 Construction of buildings in bushfire-prone areas will apply to a proposed building, the BAL of that site must be determined in accordance with the procedures as set out in that Standard. A BAL assessment will also form part of a BHMP.

3.6 Who can perform a BAL?

Any competent building designer can determine whether a building site is in a bushfire-prone area and determine the appropriate BAL. A building surveyor can then assess the designer’s determination as part of their assessment process for issuing a Certificate of Likely Compliance (CLC). The designer should provide documentation on how they arrived at their conclusions. There is no requirement that the designer’s assessment of the BAL be approved by the TFS.

This process is similar to a building surveyor assessing the thermal efficiency of a design for compliance with the NCC. If the submitted design does not comply with the NCC requirements for building in a bushfire-prone area, the building surveyor should reject it and the responsible designer will then have to modify the design.

Alternatively, there are now Accredited Assessors able to prepare reports, a BAL or a full BHMP for a site, depending on what types of permits are required.

3.7 Steps in performing a BAL assessment

There are three steps in the consideration of any site for a Class 1, 2, 3 or 10a building that might be in a bushfire-prone area:

1. Determine whether the site is a bushfire-prone area, using the revised definition in the Building Regulations 2014. This could include a bushfire-prone area as shown on a planning scheme overlay map if such a map exists (the Government is working with councils to develop maps).

2. Determine the appropriate BAL for the site using AS 3959 Construction of buildings in bushfire-prone areas. This will normally require a site visit.

3. Determine relevant construction requirements for the building from AS 3959. There are also the mandatory road and water supply requirements of NCC Volume One Tas Appendix or Tas Part 3.7.4.0 in Volume Two.

See the link to a Guide to assessing a Bushfire Attack Level at the end of this Advisory Note.
3.8 Do I need a BHMP, or a BAL Assessment?

These requirements under planning, and building legislation, are different.

**Planning requirements**

Planning schemes incorporating Planning Directive Number 5 – Bushfire-Prone Areas Code, include acceptable solutions for developments provided by persons accredited by the Tasmania Fire Service, which will have been incorporated into a BHMP.

“Bushfire hazard management plan” as defined means a plan showing means of protection from bushfires in a form approved in writing by the Chief Officer of the Tasmania Fire Service”. This plan is a comprehensive bushfire risk management plan for the land in a bushfire-prone area. It will usually include a BAL assessment. Some examples of acceptable solutions for protection measures include:

- adequate distances between buildings and bushfire-prone vegetation;
- safe access arrangements for new subdivisions and habitable buildings, for fire-fighters and occupants;
- adequate, accessible and reliable water supplies to protect lives and property during a bushfire; and
- special provisions for vulnerable and hazardous uses in bushfire-prone areas.

**Building requirements**

“BAL” means the Bushfire Attack Level as defined in AS3959 – 2009 Construction of buildings in bushfire prone areas as ‘a means of measuring the severity of a building’s potential exposure to ember attack, radiant heat and direct flame contact, using increments of radiant heat expressed in kilowatts per metre squared, and is the basis for establishing the requirements for construction to improve protection of building elements from attack by bushfire’. This assessment is a measure of the potential severity of exposure from a bushfire.

The following table exhibits the distinctions between preparing a Bushfire Hazard Management Plan, and making a BAL assessment, and giving a Form 55 as a Certificate of a Specialist.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Legislation</th>
<th>Can be prepared by</th>
<th>Qualification required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bushfire Hazard Management Plan for development permission on a site</td>
<td>Planning Directive Number 5 – Bushfire-Prone Areas Code</td>
<td>A person accredited by the Tasmania Fire Service</td>
<td>A person who has undertaken specialist training to gain a formal qualification (e.g. a five day course offered by the University of Technology Sydney)</td>
</tr>
<tr>
<td>Giving a Form 55 (Certificate of a Specialist) for a BAL assessment for building work in a bushfire-prone area</td>
<td>Section 266 Building Act 2000. This certificate can be requested by the responsible designer or by the relevant building surveyor</td>
<td>A person accredited by the Tasmania Fire Service</td>
<td>A specialist with the qualifications as prescribed by the Director of Building Control’s Determination on Specialists or Other Persons (as revised 1 July 2014)</td>
</tr>
</tbody>
</table>
To summarise the assessment types:

- If the applicable planning scheme applies Planning Directive 5 and requires that a BHMP is required for a planning permit, then only an Accredited Assessor can prepare a BHMP (it will also indicate the BAL for the site).

- If land is in a bushfire-prone area but there is no planning requirement to obtain a BHMP, then a BAL assessment will have to be performed to obtain a Certificate of Likely Compliance and a building permit. That BAL can be performed either by an Accredited Assessor or by the designer engaged by the owner.

Future of BAL assessments by designers

With -

- more TFS Accredited Assessors
- ability of designers and building surveyors to rely on a BHMP;
- adoption of Planning Directive No. 5 (PD5 “Bushfire Code”) by more councils;

the requirement for a responsible designer to perform a BAL assessment will steadily decrease.

4.0 Tanks for a fire-fighting water supply - Questions and Answers

Q: Does a plastic tank need protection from heat/ ember attack?

A: Yes. If the land is situated in a designated bushfire-prone area, and the fire fighting water supply is from a tank, then that tank must:

- Contain at least 10,000 litres stored for use for fire fighting purposes; and
- The tank and above ground pipe and fittings must be made of non-rusting, non-combustible, and non-heat-deforming materials (so as not to be affected by radiant heat or the effects of bushfire ember attack); and
- The water tank must have an opening in the top of not less than 250 mm diameter or be fitted with a DIN or NEN Standard compliant forged Storz 65mm adaptor fitted with a suction washer; and
- Be located at least six metres away from a building but no more than three metres away from a hard standing area where a fire fighting appliance/ truck can park to pump water from the tank. If a hose is to be connected to the fire fighting water supply tank it must be long enough to be able to encircle the habitable building to put out a fire at any point.

Effectively item (2) above means that a plastic tank and any plastic fittings cannot be used as a fire fighting water supply in a bushfire prone areas as it will deform when subject to radiant heat. Steel or concrete tanks are the only types of tanks that are fit for purpose in these areas without any significant modification. This is the experience from Victoria wildfires in 2009 and in Dunalley 2013.
Q: Can plastic tanks be used if the BAL is assessed as being low?
A: If a site is in a bushfire prone area, then regardless of the BAL risk level assessed, the fire fighting water tank must comply with the criteria in item (2) above and therefore plastic tanks are not fit for purpose in those designated areas.

Q: Do other tanks need to be protected?
A: No. If the intended use of another tank is not for fire fighting purposes (e.g. for drinking water, stock watering, garden watering) then that tank is not required to be protected from effects of a bushfire and it could be a plastic tank.

Q: Can a fire fighting tank be used for drinking water?
A: Yes, if at least 10,000 litres is reserved for fire fighting purposes. As an example, an owner may purchase a 20,000 litre tank suitable for fire fighting and also use that tank for a drinking water supply, provided that the fire-fighting capability does not fall below the requirement for having 10,000 litres available. Every drinking water tank must also comply with the relevant provisions of Appendix C of the Tasmanian Plumbing Code 2013 to provide for a safe drinking water supply.

5.0 Other useful bushfire information and resources

- The Building Regulations 2014, contains definitions in regulation 3 regarding:
  - What is a Bushfire-Prone Area
  - What is Bushfire-Prone Vegetation
  - What is Contiguous vegetation
  - Bushfire Hazard Management Plan
  - A Bushfire-Prone Area as defined in the Tasmanian Building Regulations is the same as a “Designated Bushfire Prone Area” as defined in the NCC.

The Building Regulations 2014 and the Building Act 2000 are available free from The Law website.

- Guide to Conducting a BAL Assessment

- The Australian Standard AS3959 – 2009 Construction of buildings in bushfire prone areas contains the technical details for conducting BAL assessments and for the construction of buildings in bushfire-prone areas. The Standard, including amendments, is available for purchase from SAI Global.

- Tasmania Fire Service training slides presented to council permit authorities on 15 July 2014. The presentation deals with basic concepts and progress on implementation of requirements.

- Planning Advisory Note on Bushfires number 20 “Bushfire-Prone Areas Code” contains guidance on the implementation of Planning Directive No. 5 – Bushfire-Prone Areas Code. Published by the Tasmanian Planning Commission, it explains basic concepts regarding bushfire-prone areas, including identification of the vegetation types for determining if land is in a bushfire-prone area. Go to:

- Building in Bushfire Areas – brochure and other information prepared by the Tasmania Fire Service.