Building Code of Australia. These asset protection zones are depicted on Schedule 1. An Outer Protection Area has been incorporated in the asset protection zone to reduce the necessary clearing of mature trees.

3.2 Building Protection

The construction of buildings in bushfire prone areas is subject to stringent rules pertinent to the building envelope being located on the non hazardous side of the asset protection zone. Clearly the APZ is to provide a safe space to separate the hazard from the building. The APZ can not be used for construction because it is the area where the flame of a fire will potentially enter. Thus this area is referred to as the flame zone.

A construction classification system has been designed for bushfire prone areas and is based on three levels, Level 1, Level 2 and Level 3. The lowest level being Level 1 has the longest APZ distance whilst Level 3 has the shortest APZ distance. These allow a varying level of building design and use of appropriate materials.

The proposed building construction levels are located on the attached Schedule 1 plan and are depicted on each proposed building for ease of reference. Generally Level 3 construction category is limited to the north-eastern boundary with Level 1 construction required for the south-western boundary.

3.3 Hazard Management

Should the development be approved the owner or occupier will be required to manage the asset protection zones to the specifications of Councils approval.

A *'fuel management plan'* will be required to be prepared in order to ensure that hazard management occurs over the varying vegetated landscapes as defined on Schedule 1 attached.

In terms of implementing and or maintaining asset protection zones there is no physical reason that could constrain hazard management from being successfully carried out by normal means e.g. mowing / slashing. Generalised guidelines for managing asset protection zones are provided as Appendix 1 attached.

3.4 Availability of Fire Fighting Services

There is a Rural Fire Service Brigade located at Beacon Hill approximately 3 kilometres to the east. The Rural Fire Brigade would have a response time of approximately 10-15 minutes to service the development if they are not assisting elsewhere.

There is a NSW Fire Brigade Located at Forestville approximately 3.8 kilometres to the southwest. Forestville NSW Fire Brigade would have a response time of approximately 15-20 minutes to service the development if they are not assisting elsewhere.

3.5 Access for Fire Fighting Operations

The primary access point to the development will be provided from the central sector of the development directly linking to Oxford Falls Road in the east. This road is proposed to cross the proposed environmental corridor – see Schedule 1.

Additionally two access points are provided at Barnes Road which adjoins the south-eastern boundary of the central sector. This road then links to Oxford Falls Road to the east which provides egress in a northerly and southerly direction. A third egress / access option is

available to emergency vehicles via Barnes Road to the existing residential development to the south-west.

The internal access roads comprise of a series of public roads of varying widths. An 8 metre wide carriageway provides a series of circular roads within the central sector of the development. This carriageway extends to provide a turning head within the northern sector and a cul-de-sac within the southern sector of the development

Access to each building is provided via the main (8m wide) road and onto single laneway. In most cases these roads provide for perimeter access and protection.

Road widths proposed and depicted on plans are as follows;

- Main public roads – two way - 8 metres pavement
- Driveway widths – one way – although these driveways are not depicted on plans a 4 metre wide pavement is recommended as detailed below.

The *Performance Criteria* required by the RFS involves "*providing internal road widths and design (that) enable safe access for emergency services and (therefore) allow crews to work with equipment about the vehicle"*.

The *Acceptable Solutions* for Public Roads to the RFS include:

Acceptable Solutions	**Compliant or not**
Public Roads are two -wheel drive, all weather roads	Compliant
Perimeter roads are two way (carriageway 8 m minimum kerb to kerb). Non perimeter roads comply with Table 4.1 - Road widths for Category 1 Tanker within PBP 2006.	All major roads are 8 metres wide. Where a building is located over 70 metres from a public road and / or fire hydrant the road width should be increased to 4 metres.
Perimeter road is linked with the internal road system at an interval of no greater than 500 metres in urban areas	Compliant
Traffic management devices are constructed to facilitate access by emergency services	Compliant - can be made a condition of consent
All roads are through roads. If unavoidable dead end roads are not more than 200 metres in length, incorporate a minimum 12 m outer radius turning circle, sign posed dead end and direct traffic away from the hazard.	Compliant. Dead end roads are less than 200 metres in length.
Curves of roads (other than perimeter) have a minimum inner radius of 6 m and are minimal in number. The minimum distance between inner and outer curves is 6m.	Compliant
Maximum grades for sealed roads do not exceed 15	Compliant.

Acceptable Solutions	Compliant or not
degrees and an average grade of not more than 10 degrees Public roads have a cross fall not exceeding 3 degrees	
Minimum vertical clearance of 4 m above the road	Compliant
The capacity of road surfaces and bridges is sufficient to carry fully loaded fire fighting vehicles (15 tonnes for reticulated water and 28 tonnes for all other areas). Bridges clearly indicate load rating	Compliant - The proposed bridge over the environmental corridor must be constructed to support fire fighting vehicles.
Public roads >6.5m wide to locate hydrants outside of parking reserves to ensure accessibility to reticulated water. Public roads 6.5 - 8 m wide are No Parking on one side with the hydrant located on this side to ensure accessibility to reticulated water Public roads <6.5 m wide provide parking within parking bays and locate services outside of parking bays to ensure accessibility to reticulated water. One way only public access are no less than 3.5 m wide and provide parking within parking bays and locate services outside of parking bays to ensure accessibility to reticulated water.	Compliant
Parking bays are a minimum of 2.6 metres wide from kerb edge to road pavement. No services or hydrants are located within parking bays. Public roads interfacing the bushfire hazard are to provide roll top kerbing to the hazard side of the road.	Compliant

The access road the proposed nursing home complies with Section 4.2.7 for access as the building is surrounded by 8 metres wide access roads on its north-eastern, south, eastern and south-western elevations.

3.7 Evacuation Safety

The primary access route involves egress from Oxford Falls Road to the north-east. This road is adjoined by extensive forest vegetation extending to the east. As a result this access road has the potential to be impeded by bushfire preventing evacuation.

The impact of smoke causing visual obstruction and or breathing difficulties upon evacuees or emergency service personnel may be a significant constraint to evacuation due the close proximity of vegetation to the main access/egress route. During extreme bushfire events evacuation of residents may be impossible and therefore safe refuge will need to be provided on site.

An evacuation plan should therefore be prepared which addresses all stages of the proposed development. The evacuation plan will be required to be prepared to the satisfaction of the NSW Rural Fire Service. An evacuation plan provides employees and

residents with the procedures to either enable premises to be suitable refuges or to evacuate or relocate, as appropriate, in the event of a bush fire (PBP 2006).

3.8 Water Supplies

Town reticulated water supply is available to the proposed development in the form of underground reticulated water system. Access points must incorporate a ring main system for all internal roads.

Fire hydrant spacing, sizing and pressures must adhere to AS2419.1 which recommends spacing of no greater than 120 metres (Source AS 2419.1 2005 Appendix B, B2) for residential development and 90 metres for commercial development (Appendix B, B3). However the RFS generally require that hydrants be spaced no greater than 90 metres. In addition all hydrant locations are to be marked with a blue 'cats eye' in the centre of the road.

3.9 Communications

Telephone communications can be provided for this development to aid in communications particularly during a bushfire incident.

4 CONCLUSIONS & STATEMENT OF COMMITMENTS

4.1 Conclusions

A bushfire protection assessment has been undertaken to consider the proposed Oxford Falls Seniors Living Resort and its compliance with '*Planning for Bushfire Protection 2006'*.

The development is regarded by the *NSW Rural Fire Service* as being part *special fire protection purpose* due to the proposed construction of a nursing home building and *residential development* for the proposed self care residential apartments.

The assessment has concluded that applying the principles of *Planning for Bushfire Protection 2006* would allow;

- Compliance with the required *asset protection zone* dimensions as advised by PBP 2006.
- Compliance with building construction in accordance with *AS 3959*.
- Compliance with hazard management requirements due to a proposed *fuel management plan* to manage onsite hazardous fuels.
- Compliance with onsite safety through the implementation of *emergency incident and evacuation plan* approved by the RFS.
- Compliance with access requirements in accordance with Section 4.2.7 of PBP for the nursing home and Section 4.1.3 of PBP for the self care units.

Other bushfire protection measures are planned and identified with the recommendations.

Thus the following illustrates the developments compliance with the general aims and objectives of PBP.

Afford occupants of any building adequate protection from exposure to a bush fire

> Response: Asset protection zones have been provided in accordance with PBP 2006. The proposed self care units and nursing home will be constructed win accordance with AS 3959. Fuel management will be undertaken in accordance with a fuel management plan written in line with *standards for asset protection zones* (RFS). Evacuation planning will be undertaken via the preparation of an emergency incident and evacuation plan approved by the RFS. Access for the self care units will comply with Section 4.1.3 of PBP. The proposed nursing home complies with Section 4.2.7 for access as the building is surrounded by 8 metres wide access roads on its north-eastern, south, eastern and south-western elevations. Other bushfire protection measures are planned and identified with the recommendations below.

Provide for a defendable space to be located around buildings

> Response: Asset protection zones have been provided in accordance with PBP 2006.

Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition

Response: Asset protection zones have been provided in accordance with PBP 2006 and construction levels will be applied to the buildings depending on the separation of the buildings to the bushfire hazard as highlighted within Tables 1 – 4 and depicted in Schedule 1. Fuel management will occur in the APZ.

Ensure that safe operational access and egress for emergency service personnel and residents is available

Response: Road access has been designed in accordance with PBP for sufficient width roadways. A secondary access / egress route is available for emergency services personnel via Barnes Road to the existing residential development to the south-west. This access route should provide a safe alternative for fire fighters.

Provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ); and

Response: Fuel management can be undertaken by the land owners and funded by the Oxford Falls Seniors Living Resort.

Ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting).

Response: Water supply and access to roadside water hydrants can be assured by a condition of Council consent.

The following illustrates the nursing homes compliance with *aims and objectives* for special fire protection purpose developments.

Provide for the special characteristics and needs of occupants. Unlike residential subdivisions, which can be built to a construction standard to withstand the fire event, enabling occupants and fire fighters to provide property protection after the passage of fire, occupants of SFPP developments may not be able to assist in property protection. They are more likely to be adversely affected by smoke or heat while being evacuated.

Response: The proposed nursing home is located adjacent to the access / egress route of Barnes Road to the south-east. The nursing home is also adjoined by public roads to its north-eastern and south–western aspects. Whilst these roads provide ample separation and defendable space the likelihood of the main access route of Oxford Falls being impacted by fire during a bushfire event is high. As a consequence safe evacuation may not be possible.

The proposed nursing home will be constructed in accordance with Level 1 of AS 3959 and will be positively ventilated to ensure smoke is not accessible within the building during a fire event. These measures will afford occupants with a safe refugee area during bushfire events.

Provide for safe emergency evacuation procedures. SFPP Developments are highly dependent on suitable emergency evacuation arrangements, which require greater separation from bush fire threats. During emergencies, the risk to fire fighters and other emergency services personnel can be high through prolonged exposure, where door-to-door warnings are being given and exposure to the bush fire is imminent.

Response:

This proposed nursing home has been afforded adequate asset protection zones in compliance with Appendix 2 - Table 2.6 of *Planning for Bushfire Protection 2006.* The building is exposed to a radiant heat flux of 10kw/m^2 for special fire protection purpose facilities and 29kw/m^2 for residential typo facilities; and the asset protection zone widths comply accordingly.

The following illustrates the self care units compliance with the aims and objectives for residential subdivisions.

Minimise the perimeters of the subdivision exposed to the bushfire hazard

Response: The proposed development is exposed to hazardous vegetation to the north-east and south-west. The land to the north and south has for the most part been cleared for rural residential and urban development.

Minimise bushland corridors that permit the passage of fire

Response: This has been designed accordingly.

Provide for the siting of future dwellings away from ridge-tops and steep slopes – particularly up-slopes, within saddles and narrow ridge crests.

Response: This has been designed accordingly with no ridge top or steep slope facilities.

Ensure that separation distances (APZ) between the bushfire hazard and future dwellings enable conformity with the deemed-to-satisfy requirements of the BCA.

Response: Asset protection zones have been highlighted within Tables 2 – 4 and are depicted on Schedule 1 attached. These asset protection zones comply with the 'deemed-to-satisfy' requirements of the BCA as they are marked.

Provide and locate, where the scale of development permits, open space and public recreation areas as accessible public refuge areas or buffers (APZ)

Response: There are open space or public recreation areas proposed within the resort in the form of asset protection zones.

Ensure the ongoing management of asset protection zones

Response: Fuel management can be undertaken within the dedicated asset protection zones by the land owners and funded by the Oxford Falls Seniors Living Resort.

Provide clear and ready access from all properties to the public road system for residents and emergency services.

Response: Although the access driveways onto the public road ways are not depicted on our plan it is recommended that where a building is located over 70 metres from a public road and / or fire hydrant the road width should be increased to 4 metres.

Ensure the provision of and adequate supply of water and other services to facilitate effective fire fighting.

Response: Town water is available to service the development.

The following statement of commitments are provided to ensure that the development is in accord or greater than the requirements of PBP.

4.2 Statement of Commitments

Commitment 1 - Asset protection zones are to be provided to the proposed development. Asset protection Zones are to be measured from the exposed wall of the any dwellings towards the hazardous vegetation. The asset protection zones shall be as nominated in Table 1 - 4 and also as depicted in Schedule 1.

Commitment 2 - Fuel management within the asset protection zones is to be maintained by regular maintenance of the landscaped areas, mowing of lawns in accordance with a specialist *Fuel management plan.*

Commitment 3 - Building construction standards are to be applied in accordance with Level 1, 2 or 3 Australian Standard AS3959 *'Construction of Buildings in Bushfire Prone Areas* as indicated in Tables 1 – 4 and depicted in Schedule 1.

Commitment 4 - A hydrant water supply is to be installed in accordance with Australian Standard AS2419.1.

Commitment 5 - Roof gutters and valleys should be provided to all buildings that are located within 50 metres of a stand if native vegetation. These are not part of the AS3959 and are an additional necessary recommendation. They shall be designed and constructed to deny all leaves from entering the gutter and building up on that gutter or roof valleys. Any material used in such a system should have a flammability index of no greater than 5 (as measured against AS 1530.2).

Commitment 6 - The landowner / manager is to be made aware of their liability to manage their development lands for the ongoing protection of themselves and their neighbours (refer Section 63(2) Rural Fires Act).

Commitment 7 - The landowner / manager should be provided with publications such as *'Bush Fire Protection for New and Existing Rural Properties'* relating to living in a bush fire prone area and available through the Rural Fire Service or Council.

Commitment 8 - An evacuation plan should be produced for the development. This plan will address the need for evacuation of residents either off site or to a safe site within the development property. This plan is in addition to any evacuation building plans required by any other government authority typical for health type facilities.

REFERENCES

Australian Building Codes Board (1996) – Building Code of Australia, Class 1 and Class 10 Buildings Housing Provisions Volume 2.

Chan, K.W. (2001) *The suitability of the use of various treated timbers for building constructions in bushfire prone areas'* . Warrington Fire Research.

Councils of Standards Australia AS3959 (1999) – Australian Standard Construction of buildings in bush fire-prone areas.

Keith, David (2004) – Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the Act. The Department of Environment and Conservation.

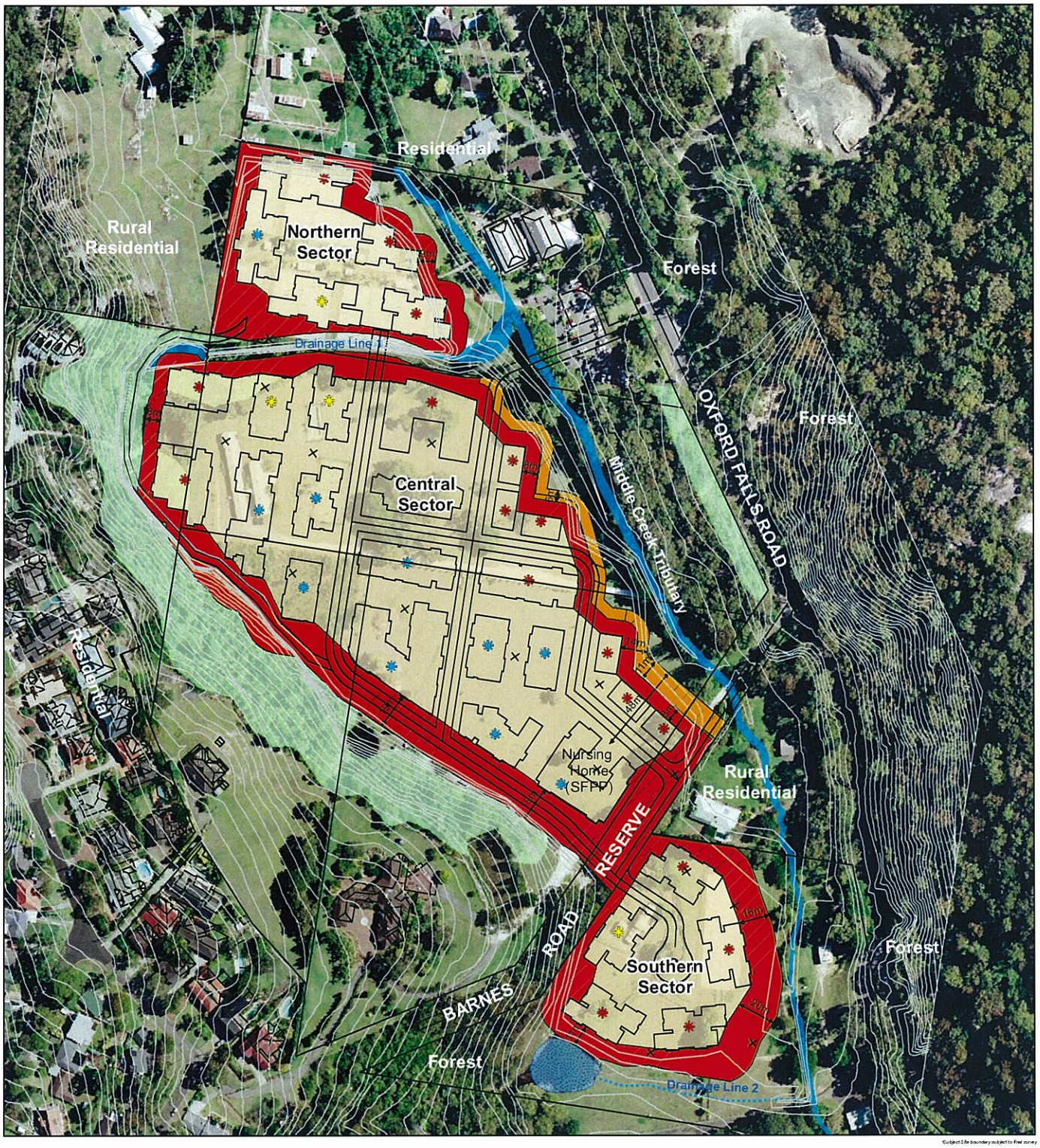
Rural Fire Service (2006) - *'Planning for Bush Fire Protection - A Guide for Councils, Planners, Fire Authorities and Developers*. NSW Rural Fire Service.

Rural Fire Service (2006) - Bushfire Attack Software on RFS Web site.

Tan, B Midgley, S Douglas, G & Short, (2004). '*A Methodology for Assessing Bushfire Attack'.* RFS Development Control Service.

SCHEDULE 1

PLAN OF BUSHFIRE PROTECTION MEASURES



Legend

- Natural Vegetation
- Dam
- Drainage Line
- Middle Creek Tributary

Construction Standards

- Level 1
- Level 2
- Level 3

Asset Protection Zone

- Inner Protection Area
- Outer Protection Area
- Internal Protection Area

0 20 40 60 80 100 m

1:2,000

Original plan produced in A3 colour

N

Travers environmental

Bushfire & Environmental Consultants

38A, The Avenue, Mt. Penang Parklands,
Central Coast Highway, Kariong NSW 2250
Ph (02) 4340 5331 Fax (02) 4340 2151
e-mail: ecology@traversenvironmental.com.au

Schedule 1 -

Bushfire Protection Measures

Oxford Falls

Ver.S1 By.TM/KF
29/10/08
Ref.No.8054

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APPENDIX 1

MANAGEMENT OF ASSET PROTECTION ZONES

ITEM	*LEVEL 1*	*LEVEL 2*	*LEVEL 3*
FLOORING SYSTEMS	The requirements for a floor in a Level 1 construction shall be one, or a combination, of the following: (a) A concrete slab-on-the-ground. (b) A suspended floor, which may be one, or a combination of the following, supported by posts, columns, stumps, piers, or poles complying with Clause 3.4 or walls complying with Clause 3.5: (i) A concrete floor. (ii) A framed floor where the underside of any one bearer at any point is greater than 600mm above the finished ground level. (c) A suspended timber floor, framed with timber or metal, where the underside of any one bearer, at any point, is not greater than 600mm above the finished ground level and which has – (i) The subfloor space unenclosed and any timber flooring, bearers and joists of fire-retardant-treated timber; or (ii) The subfloor space fully enclosed, either by a wall that complies with Clause 3.5.1(a), or by the use of non-combustible sheet material which extends for at least 400mm above the finished ground level. Where non-combustible fibre- reinforced cement sheets are used to enclose the subfloor space, the material shall have a minimum thickness of 6mm and all material shall meet the bottom of the cladding material to ensure there are no gaps on the exterior face of the building.	The requirements for a floor in a Level 2 construction shall be as for Level 1 construction (see Clause 3.3.1) NOTE: The protection of subfloor openings against the entry of burning debris by way of introducing non-combustible material, such as fibre-reinforced cement sheeting to effectively enclose the subfloor space, may conflict with the requirements for termite protection and should therefore, take into consideration of the provisions of AS 3660.1.	The requirements for a floor in a Level 3 construction shall be as for Level 2 construction (see Clause 3.3.2) Except that in the case of a framed floor, where any bearer or joist is greater than 600mm above finished ground level and the floor is not enclosed as described in Clause 3.3.1 (c)(ii), the bearer, joists and flooring shall be of fire-retardant-treated timber or sheeted underneath with non-combustible material.

ITEM	*LEVEL 1*	*LEVEL 2*	*LEVEL 3*
SUPPORTING POSTS, COLUMNS, STUMPS, PIERS AND POLES	The requirements for supporting posts, columns, stumps, piers and poles in a Level 1 construction shall be one, or a combination, of the following: (a) Non-combustible. (b) Fire-retardant-treated timber for a minimum of 400 mm above the finished ground level. (c) Timber mounted on galvanized metal shoes with a clearance of not less than 75 mm above the adjacent finished ground level or paving level (see Figure 3.2). The above do not apply where the subfloor space is totally enclosed as described in Clause 3.3.1(c) (ii).	The requirements for supporting posts, columns, stumps, piers and poles in a Level 2 construction shall be as for Level 1 construction (see Clause 3.4.1)	Except in enclosed subfloor spaces, the requirements for supporting posts, columns, stumps, piers and poles in a Level 3 construction shall be as for Level 2 construction (see Clause 3.4.2) except that all timber shall be fire-retardant-treated to full height.

ITEM	*LEVEL 1*	*LEVEL 2*	*LEVEL 3*
EXTERNAL WALLS	The requirements for external walls in a Level 1 construction shall be as follows: (a) External walls shall be one, or a combination, of the following: i) A wall having an external leaf of masonry, concrete, pise, rammed earth or stabilized earth. ii) A framed wall that incorporates either – A) breather-type sarking complying with AS.NZS 4200.1 and with a flammability index of not more than 5 (see AS 1530.2) installed immediately behind the external cladding; or B) an insulation material conforming to the appropriate Australian Standard for that material. NOTE: No restrictions apply to the cladding material. A wall of timber logs that have the butting faces of adjacent logs, gauge-planed, and the space between the logs sealed in a manner that prevents the entry of burning debris and which allows for building movement. (b) Where the external leaf or cladding is of a combustible sheet material and is less than 400 mm above finished ground level, the cladding shall be protected for not less than 400 mm above the adjacent finished ground level (see Figure 3.3) (i) by covering it with a suitable non-combustible material, or fire-retardant-treated timber suitably sealed to the existing cladding so as to prevent the entry of burning debris (see Figures 3.3 (a) and 3.3(b)); (ii) by substituting with a suitable non-combustible sheet material, or fire-retardant-treated timber (see Figure 3.3 (c)); or (iii) where the external cladding is timber, by using fire-retardant-treated timber.	The requirements for walls in a Level 2 construction shall be as for Level 1 construction (see Clause 3.5.1), except that PVC cladding is not permitted and all external timber wall cladding shall be of fire-retardant-treated timber.	The requirements for external walls in a Level 3 construction shall be as for Level 2 construction (see Clause 3.5.2).

ITEM	*LEVEL 1*	*LEVEL 2*	*LEVEL 3*
WINDOWS	All openable windows, including louvres, in a Level 1 construction shall be screened with corrosion-resistant steel, bronze or aluminium mesh with a maximum aperture size of 1.8 mm in such a way that the entire opening remains screened when the window is open.	The requirements for all windows, including louvres, in a Level 2 construction shall be as for Level 1 construction (see Clause 3.6.1) except that aluminium mesh shall not be used. In addition to the above, the following applies: (a) Where timber is used, it shall be fire-retardant-treated timber except where protected by non-combustible shutters. (b) Where leadlight windows are used, they shall be protected by shutters constructed of a non-combustible material or of toughened glass.	The requirement for windows in a Level construction shall be as for Level 2 construction (see Clause 3.6.2) except that where the windows are not protected by non-combustible shutters, they shall be glazed with toughened glass.

ITEM	*LEVEL 1*	*LEVEL 2*	*LEVEL 3*
EXTERNAL DOORS	External doors in a level 1 construction are to be fitted with – (a) weather strips or draught excluders to prevent the penetration or build-up of burning debris beneath the door; and (b) tight fitting door screens fitted with corrosion-resistant steel, bronze or aluminium mesh with a maximum aperture size of 1.8 mm.	The requirements for external doors in a Level 2 construction shall be as for Level 1 construction except that aluminium shall not be used for the mesh (see Clause 3.7.1). If leadlight glazing panels are incorporated in the doors, they shall be protected by shutters constructed of a non-combustible material or of toughened glass.	The requirements for external doors in a Level 3 construction shall be as for Level 2 construction (see Clause 3.7.2) except that – (a) timber doors shall be fire-retardant-treated or shall have a non-combustible covering on the exterior surface; or (b) doors shall be protected by shutters of non-combustible material; or (c) doors shall be solid-core having a thickness not less than 35 mm.
VENTS AND WEEPHOLES	Vents and weepholes in a Level 1 construction shall be protected with spark guards made from corrosion-resistant-steel, bronze or aluminium mesh with a maximum aperture size of 1.8 mm (see Figure 3.4).	The requirements for Level 2 construction vents and weepholes shall be as for Level 1 construction (see Clause 3.8.1), except that aluminium mesh shall not be used.	The requirements for vents and weepholes in a Level 3 construction shall be as for Level 2 construction (see Clause 3.8.2

ROOFS	The following general requirements shall apply to all types of roofing systems in a Level 1 construction: (a) Timber shakes or shingles shall not be used for the roof covering. (b) The roof/wall junction shall be sealed either by the use of fascias and eaves linings, or by sealing the gaps between the rafters with a suitable non-combustible material. (c) Sarking shall have a flammability index of not more than 5 (see AS1530.2). ***Tiled roofs*** Tiled roofs shall be fully sarked (see Clause 3.9.1.1(c). The sarking shall be located directly below the tiling barrens and shall cover the entire roof area including the ridge ***Sheeted roofs*** The requirements for sheeted roofs in a Level 1 construction are as follows: (a) Only metal or fibre-cement sheet shall be used. (b) All gaps under the corrugations or ribs of the roofing material where it meets the fascia or wall line shall be sealed or protected- (i) by fully sarking the roof; or (ii) by providing corrosion-resistant steel or bronze mesh, with a maximum aperture size of 1.8 mm, profiled metal sheet, neoprene seal, compressed mineral wool or similar material.	The requirements for a roof in a Level 2 construction shall be as for Level 1 construction (see Clause 3.9.1), except that all roof sheeting shall be non-combustible and sarked, and rooflight glazing shall be of wired glass. Thermoplastic material or toughened glass shall not be used as the glazing for rooflights. The case of the evaporative cooler shall be manufactured from a non-combustible material.	The requirements for roof covering in a Level 3 construction shall be as for Level 2 construction (see Clause 3.9.2) except that no fibre-reinforced cement or aluminium sheet shall be used.

ROOFS (Cont.)	NOTES: 1) The method of protection in Item (b)(ii) can only be achieved on a roof without valleys and having the deck fixed directly to, but not structurally supported by, the fascia. 2) It is generally recognized that where compressed mineral wool is used for sealing against bushfire attack or for other purposes, adequate ventilation should be provided to stop condensation on the mineral fibre causing corrosion in the roof sheeting or supporting structure. (c) Rib caps and ridge capping shall be sealed in accordance with Clause 3.9.1.3 (b) (see Figure 3.5(a)), or preformed rib caps or ridge capping shall be used (see Figures 3.5(b) and (c)). ***Rooflights*** The requirements for rooflights in a Level 1 construction are as follows: (a) All penetrations of the roof space for the installation of rooflights and associated shafts shall be sealed with a non-combustible sleeve or lining. Thermoplastic sheet in a metal frame may be used for a rooflight, but the diffuser installed at ceiling level shall be of wired or toughened glass in a metal frame NOTE: AS 1288 and AS 4285 sets out specific requirements for glazing and skylights. (b) Vented rooflights shall be provided with corrosion-resistant steel or bronze mesh having a maximum aperture size of 1.8 mm.		

ROOFS (Cont.)	***Roof ventilators*** All components of roof ventilators, including the rotary type, in a Level 1 construction shall be constructed of non-combustible material and shall be sealed against the entry of sparks and embers with corrosion-resistant steel or bronze mesh having a maximum aperture size of 1.8 mm. ***Roof-mounted evaporative cooling units*** Roof-mounted evaporative cooling units shall only be used if the openings to the cooling unit are encased in corrosion-resistant steel or bronze mesh with a maximum aperture size of 1.8 mm.		
EAVES	All eaves in a Level 1 construction shall be enclosed, and the fascia or the gaps between the rafters shall be sealed (see Clause 3.9.1.1)	The requirements for eaves in a Level 2 construction shall be as for Level 1 construction (see Clause 3.10.1), except that all timber eaves lining and joining strips shall be of fire-retardant-treated timber.	The requirements for eaves in a Level 3 construction shall be as for Level 2 construction (see Clause 3.10.2) except that aluminium shall not be used.
FASCIAS	There are no requirements for fascias in a Level 1 construction.	All materials used for fascias in a Level 2 construction shall be either non-combustible or of fire-retardant-treated timber.	The requirements for fascias in a Level 3 construction shall be as for Level 2 construction (see Clause 3.11.2) except that no fibre-reinforced cement or aluminium sheet shall be used.

GUTTERS AND DOWNPIPES	Any materials or devices used to stop leaves collecting in the gutters of a Level 1 construction shall have a flammability index of not greater than 5 when tested in accordance with AS 1530.2.	The requirements for gutters and downpipes in a Level 2 construction shall be as for Level 1 construction (see Clause 3.14.1).	The requirements for gutters and downpipes in a Level 3 construction shall be as for Level 2 construction (see Clause 3.12.2).
VERANDAS AND DECKS	Verandas, decks, and the like, forming part of a building required to be Level 1 construction shall comply with one, or a combination, of the following: (a) *Slab* - A reinforced concrete suspended slab floor, supported by posts or columns complying with Clause 3.4 or walls complying with Clause 3.5, or a slab-on-the-ground floor complying with Clause 3.3. (b) *Sheeted or tongued and grooved solid flooring* – The requirements for flooring are as follows: (i) Compliance with the flooring requirements shall be in accordance with Clause 3.3 (ii) Where the clearance between the finished ground level and the underside of the floor is not greater than 400 mm above finished ground level, all joints in the flooring shall be covered (above the floor level) or shall be sealed. (c) *Spaced decking* – The requirements for spaced decking are as follows: (i) The decking timbers shall be fixed with a clearance of not less than 5 mm between adjacent timbers.	The requirements for verandas and decks in a Level 2 construction shall be as for Level 1 construction (see Clause 3.11.1) except that if spaced decking is used, fire-retardant-treated timber shall be used for the decking material.	The requirements for verandas and decks in a Level 3 construction shall be as for Level 2 construction (see Clause 3.13.2) except that all materials shall be non-combustible or where timber is used, it shall be fire- retardant-treated (including any balustrades).

VERANDAS AND DECKS (Cont.)	(ii) The external perimeter beneath the decking shall not be enclosed nor shall access to the space beneath the decking be impeded. NOTE: This requirement is designed to ensure that access to extinguish fires and remove burning material is maintained. (iii) Any supports for the decking shall be treated as set out in Clause 3.4. (iv) Decking timbers shall not be allowed to connect with the remainder of the building unless measures are used to prevent the spread of fire into the building.		
SERVICE PIPES (WATER AND GAS)	All exposed piping, for water and gas supplies, in a Level 1 construction shall be metal. Pipes of other materials shall be buried to a depth of at least 300 mm below the finished ground level.	The requirements for service pipes in a Level 2 construction shall be as for Level 1 construction (see Clause 3.12.1).	The requirements for service pipes in a Level 3 construction shall be as for Level 2 construction (see Clause 3.14.2).