

PART **3.7**

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## **FIRE SAFETY**

- 3.7.1 Fire Separation**
- 3.7.2 Smoke Alarms**
- 3.7.3 Heating Appliances**
- 3.7.4 Bushfire Areas**
- 3.7.5 Alpine Areas**

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## PART 3.7.1 FIRE SEPARATION

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### **Appropriate Performance Requirements:**

Where an alternative fire separation design is proposed as a *Performance Solution* to that described in **Part 3.7.1**, that proposal must comply with—

- (a) *Performance Requirement P2.3.1*; and
- (b) the relevant *Performance Requirements* determined in accordance with **1.0.7**.

<b>Acceptable construction practice</b>
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### **3.7.1.1 Application**

Compliance with this acceptable construction practice satisfies *Performance Requirement P2.3.1* for fire separation.

### **3.7.1.2 General concession — non-combustible materials**

The following materials, though *combustible* or containing *combustible* fibres, may be used wherever a *non-combustible* material is *required* in the *Housing Provisions*—

- (a) plasterboard; and
- (b) perforated gypsum lath with a normal paper finish; and
- (c) fibrous-plaster sheet; and
- (d) fibre-reinforced cement sheeting; and
- (e) pre-finished metal sheeting having a *combustible* surface finish not exceeding 1 mm thick and where the *Spread-of-Flame Index* of the product is not more than 0; and
- (f) bonded laminated materials where—
  - (i) each laminate is *non-combustible*; and
  - (ii) each adhesive layer is not more than 1 mm thick; and
  - (iii) the total thickness of adhesive layers is not more than 2 mm; and
  - (iv) the *Spread-of-Flame Index* and the *Smoke-Developed Index* of the laminated material as a whole does not exceed 0 and 3 respectively.

### **3.7.1.3 External walls of Class 1 buildings**

An *external wall* of a Class 1 building, and any openings in that wall, must comply with **3.7.1.5** if the wall is less than—

- (a) 900 mm from an allotment boundary other than the boundary adjoining a road alignment or other public space; or

## FIRE SAFETY

- (b) 1.8 m from another building on the same allotment other than an appurtenant Class 10 building or a detached part of the same Class 1 building.

## STATE AND TERRITORY VARIATIONS

**In South Australia delete 3.7.1.3(b) and insert SA 3.7.1.3(b) and (c) as follows:**

- (b) 1.8 m from another building on the same allotment other than an appurtenant Class 10 building or a detached part of the same Class 1 building; or
- (c) 3 m from a *brush fence*.

## 3.7.1.4 Measurement of distances

- (a) The distance from any point on an *external wall* of a building to an allotment boundary or another building is the distance to that point measured along a line at right angles from the allotment boundary or *external wall* of the other building which intersects that point without being obstructed by a wall complying with 3.7.1.5.
- (b) Where a wall within a specified distance is *required* to be constructed in a certain manner, only that part of the wall (including any openings) within the specified distance need be constructed in that manner.

(see **Figure 3.7.1.1** and **3.7.1.2a**)

- (c) Where the distance measured is between buildings of different heights, the distance must be taken from the *external wall* with the highest elevation measured at right angles to a point that intersects a vertical projection above the adjacent wall (see **Figure 3.7.1.2b**).

## STATE AND TERRITORY VARIATIONS

**In South Australia after 3.7.1.4(c) insert SA 3.7.1.4(d) as follows:**

- (d) The distance from any point on an *external wall* of a building to a *brush fence* is measured in any direction from the *external wall*.

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Figure 3.7.1.1

WALLS AT RIGHT ANGLES TO THE BOUNDARY

Notes:

1. No protection *required* for the wall at right angles or more to the boundary.
2. For protection of encroachments refer 3.7.1.7.

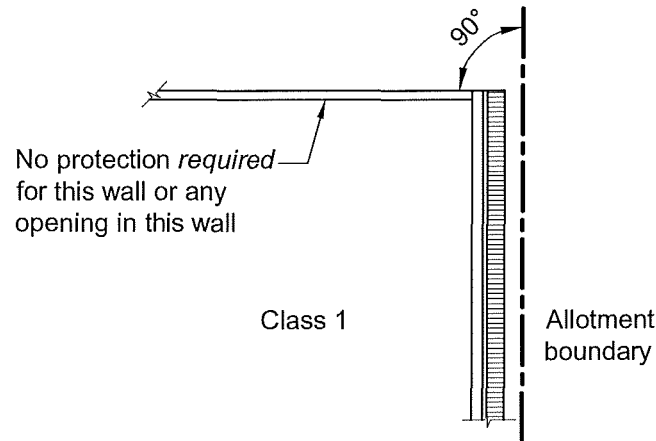
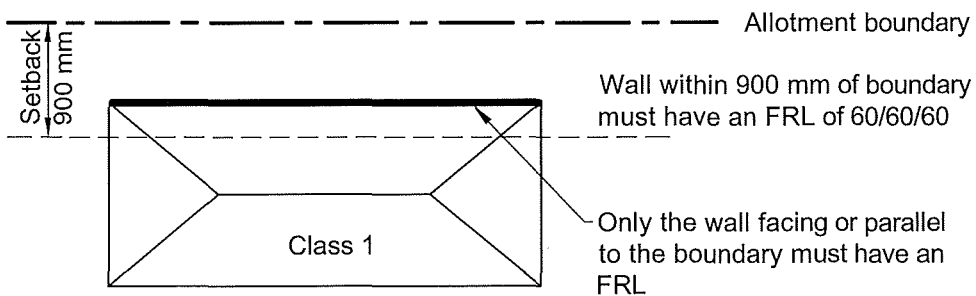


Figure 3.7.1.2a

MEASUREMENT OF DISTANCES (Plan view)

Diagram a. Full wall protection

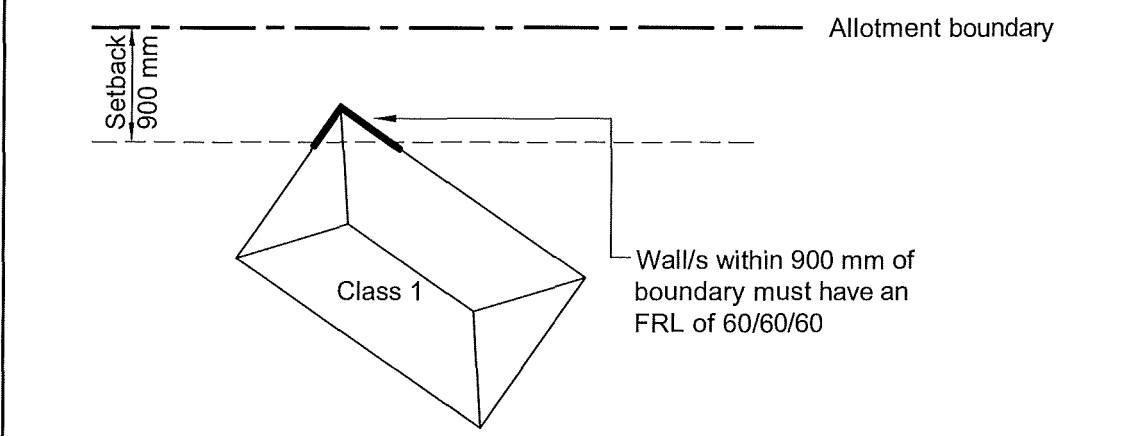


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Figure 3.7.1.2a

## MEASUREMENT OF DISTANCES (Plan view)

## Diagram b. Part walls protection

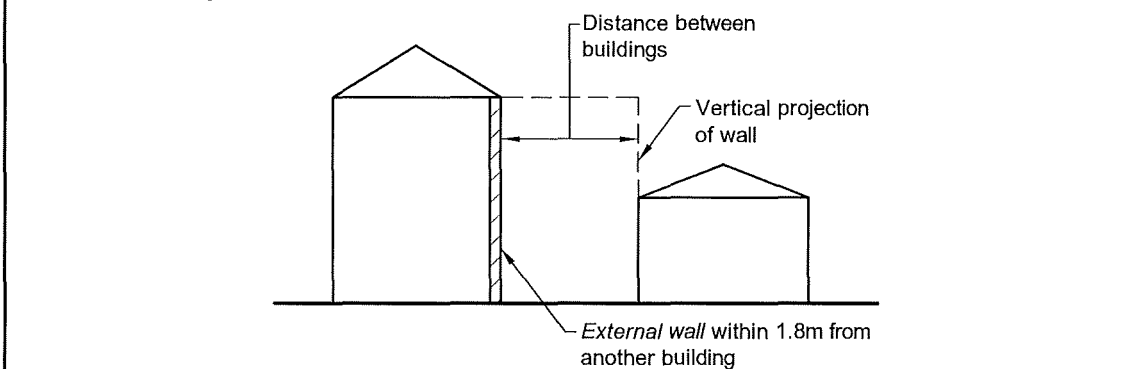


**Note:** Setback distance is measured at right angles to the boundary.

Figure 3.7.1.2b

## MEASUREMENT OF DISTANCE — BUILDINGS OF DIFFERENT HEIGHTS

## Class 1 buildings on same allotment



## 3.7.1.5 Construction of external walls

- (a) *External walls* (including gables) *required to be fire-resisting* (referred to in 3.7.1.3 or 3.7.1.6) must extend to the underside of a *non-combustible* roof covering or *non-combustible* eaves lining (See Figure 3.7.1.3) and must—
- (i) have an FRL of not less than 60/60/60 when tested from the outside; or
  - (ii) be of masonry-veneer construction in which the external masonry veneer is not less than 90 mm thick; or
  - (iii) be of masonry construction not less than 90 mm thick.

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**Explanatory information:**

The intent of the typical construction details shown in **Figure 3.7.1.3** is to ensure that combustible materials (external or internal) are not directly exposed to fire at the junction of the wall and non-combustible roof, eaves lining, guttering and the like. Other forms of construction may also be acceptable provided that they achieve this intent.

See **Figure 3.7.1.10** and **3.8.6.3** for internal *separating wall* construction under one common roof.

- (b) Openings in *external walls* required to be *fire-resisting* (referred to in **3.7.1.3** or **3.7.1.6**) must be protected by—
  - (i) non-openable fire *windows* or other construction with an FRL of not less than *-/60/-*; or
  - (ii) *self-closing* solid core doors not less than 35 mm thick.
- (c) Subfloor vents, roof vents, weepholes, control joints, construction joints and penetrations for pipes, conduits and the like need not comply with **(b)**.
- (d) Concessions for non-*habitable room windows*.

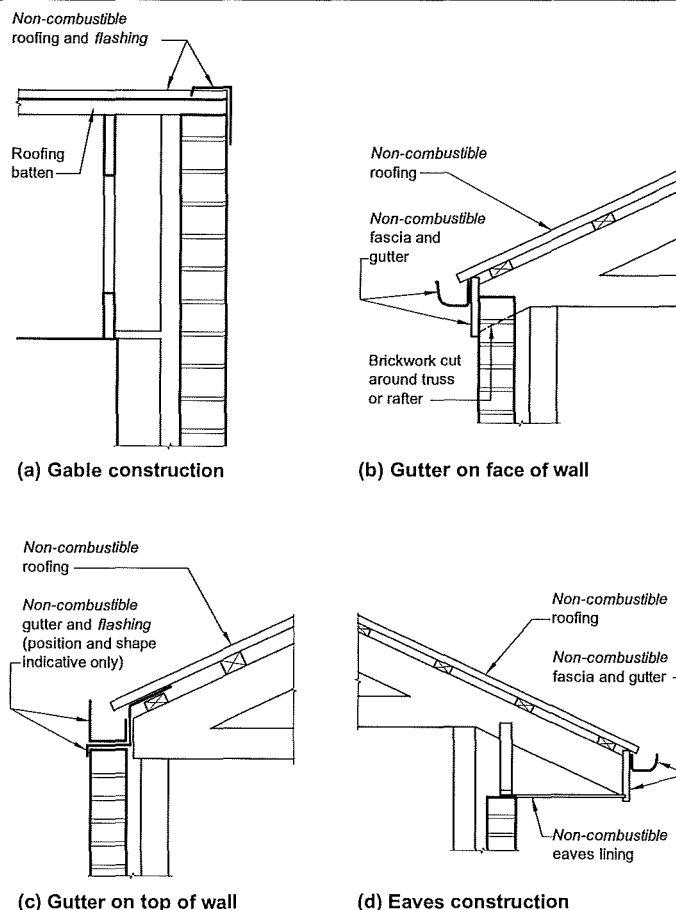
Despite the requirements in **(b)**, in a non-*habitable room*, a *window* that faces the boundary of an adjoining allotment may be not less than 600 mm from that boundary or, where the *window* faces another building on the same allotment, not less than 1200 mm from that building provided that—

- (i) in a bathroom, laundry or toilet, the opening has an area of not more than 1.2 m<sup>2</sup>; or
- (ii) in a room other than referred to in **(i)**, the opening has an area of not more than 0.54 m<sup>2</sup> and—
  - (A) the *window* is steel-framed, there are no opening sashes and it is glazed in wired glass; or
  - (B) the opening is enclosed with translucent hollow glass blocks.

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Figure 3.7.1.3

## TYPICAL CONSTRUCTION OF EXTERNAL WALLS

**Notes:**

1. The *external wall* is deemed to extend to the underside of *non-combustible* roof covering, or *non-combustible* eaves lining, when constructed as shown.
2. Where sarking is installed it must be located so that ponding of water is avoided between the fascia and the first roofing batten.
3. The location of flashing and framing is indicative only.

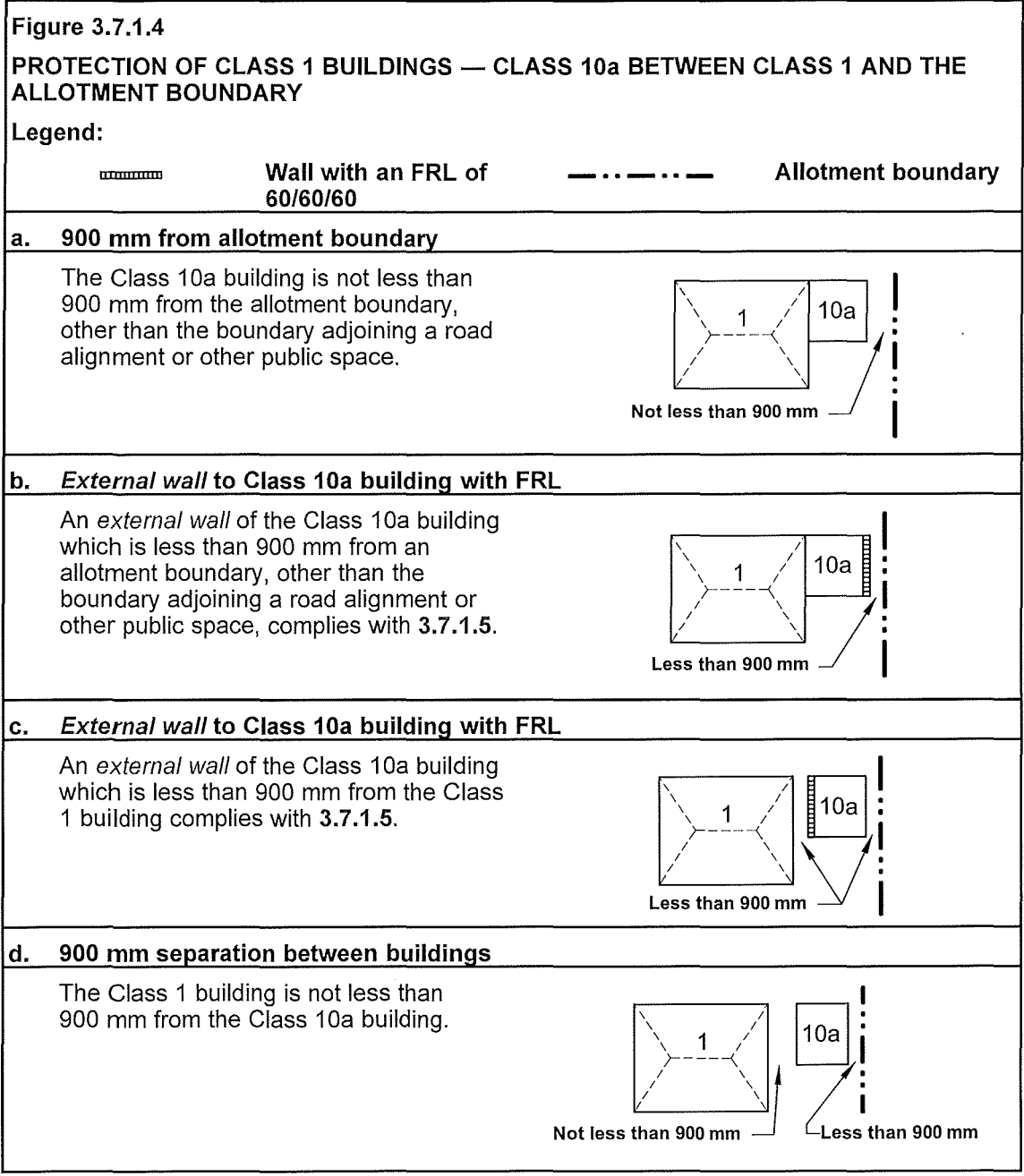
**3.7.1.6 Class 10a buildings**

- (a) Where a Class 10a building is located between a Class 1 building and the allotment boundary, other than the boundary adjoining a road alignment or other public space, the Class 1 building must be protected by one of the following methods shown in **Figure 3.7.1.4**.
- (b) Where a Class 10a building is located between a Class 1 building to which it is appurtenant and another building on the same allotment, the Class 1 building must be protected by one of the methods shown in **Figure 3.7.1.5**.



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
- (c) Where two or more Class 10a buildings on the same allotment are appurtenant to different Class 1 buildings, the Class 10a buildings must be separated in accordance with one of the methods shown in **Figure 3.7.1.6**.




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**Figure 3.7.1.4**  
**PROTECTION OF CLASS 1 BUILDINGS — CLASS 10a BETWEEN CLASS 1 AND THE ALLOTMENT BOUNDARY**

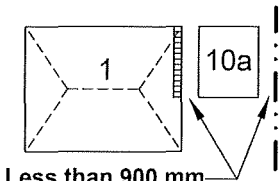
**Legend:**

 Wall with an FRL of 60/60/60

 Allotment boundary

**e. Class 1 building with FRL to external wall**


An *external wall* of the Class 1 building which is less than 900 mm from the Class 10a building complies with 3.7.1.5.




Less than 900 mm

**Figure 3.7.1.5**  
**PROTECTION OF CLASS 1 BUILDINGS — CLASS 10a BETWEEN CLASS 1 AND OTHER BUILDINGS ON ALLOTMENT**

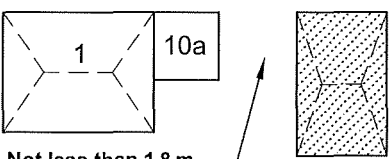
**Legend:**

 Wall with a FRL of 60/60/60

 Other Class of building on allotment

**a. 1.8 m from other building on allotment**

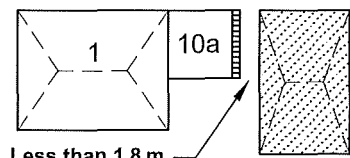
The Class 10a building is not less than 1.8 m from the other building.



Not less than 1.8 m

**b. External wall to Class 10a building with FRL**

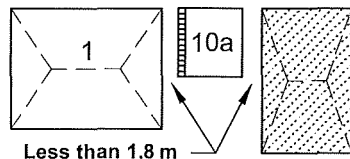
An *external wall* of the Class 10a building which is less than 1.8 m from the other building complies with 3.7.1.5.



Less than 1.8 m

**c. External wall to Class 10a building with FRL**

An *external wall* of the Class 10a building which is less than 1.8 m from the Class 1 building complies with 3.7.1.5.



Less than 1.8 m

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Figure 3.7.1.5

PROTECTION OF CLASS 1 BUILDINGS — CLASS 10a BETWEEN CLASS 1 AND OTHER BUILDINGS ON ALLOTMENT

Legend:



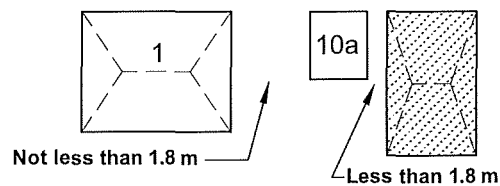
Wall with a FRL of 60/60/60



Other Class of building on allotment

d. 1.8 m separation between Class 1 and 10a

The Class 1 building is not less than 1.8 m from the Class 10a building.



e. Class 1 building with FRL to external wall

An external wall of the Class 1 building which is less than 1.8 m from the Class 10a building complies with 3.7.1.5.

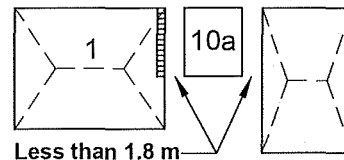


Figure 3.7.1.6

PROTECTION OF CLASS 1 BUILDINGS — SEPARATION OF CLASS 10a BUILDINGS ON AN ALLOTMENT

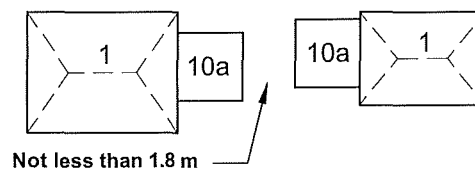
Legend:



Wall with a FRL of 60/60/60

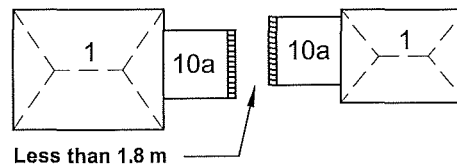
a. 1.8 m between Class 10a buildings

Each 10a must be separated from each other by a distance of not less than 1.8 m.

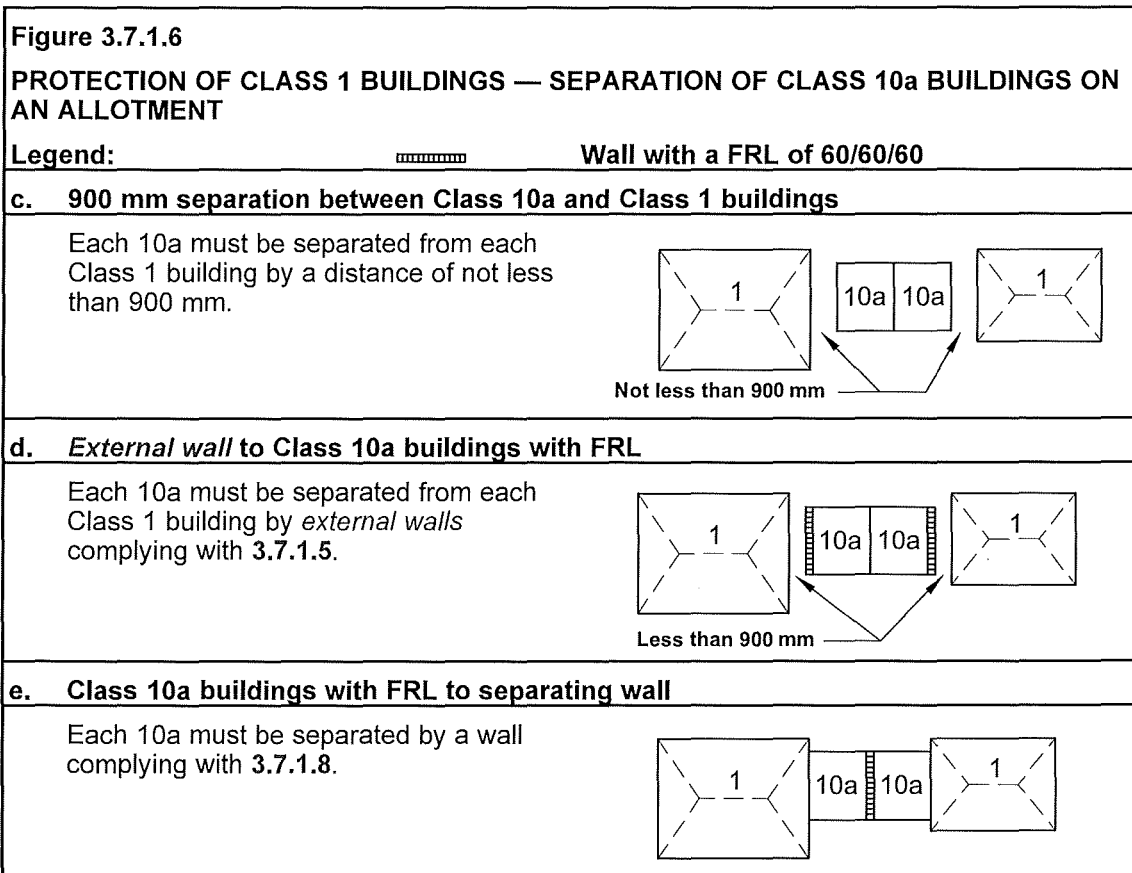


b. External wall to Class 10a building with FRL

Each 10a must be separated from each other by external walls complying with 3.7.1.5.



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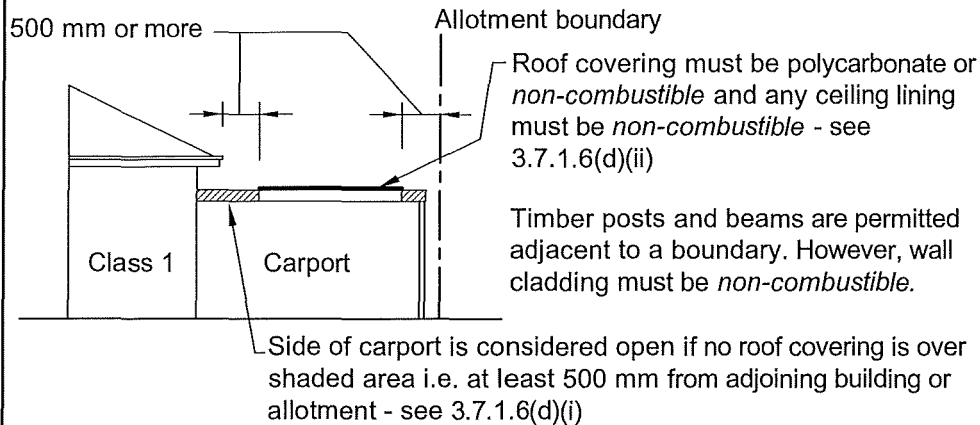


- (d) A carport is exempt from (a), (b) and (c) if—
- (i) it has two or more sides open and not less than one third of its perimeter open and, for the purposes of this clause, a side is considered to be open if the roof covering adjacent to that side is not less than 500 mm from another building or allotment boundary; and
  - (ii) it has a polycarbonate or *non-combustible* roof covering and any ceiling lining and wall cladding, including gables, is also *non-combustible* (see **Figure 3.7.1.7**); and

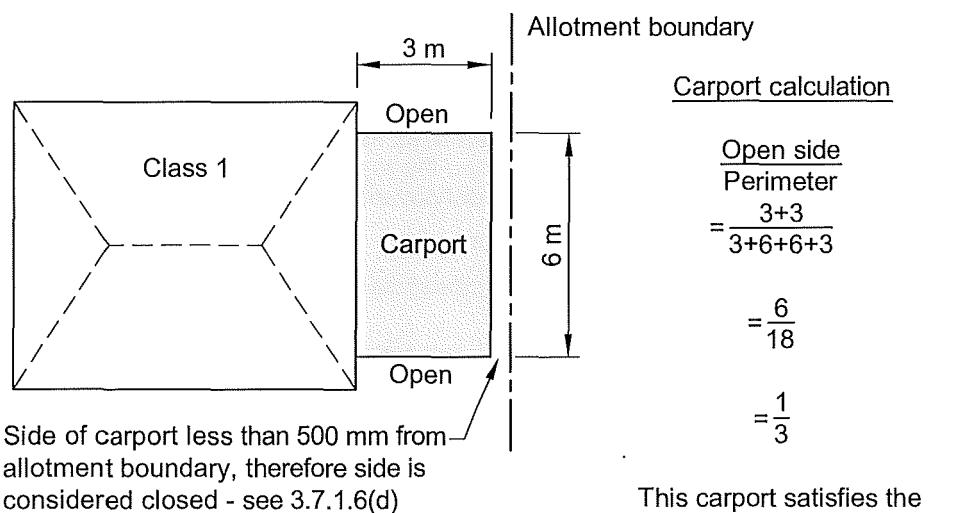
## FIRE SAFETY

Figure 3.7.1.7

## IDENTIFYING AN OPEN CARPORT



(a) Example A



(b) Example B

- (iii) it does not provide direct vertical support to any part of the Class 1 building; and
- (iv) in the case where it has a common roof structure with the Class 1 building and the carport does not have a ceiling (see **Figure 3.7.1.8**), the opening between the top of the wall of the Class 1 building and the underside of the roof covering is infilled with—
  - (A) a *non-combustible* material; or
  - (B) construction clad with *non-combustible* material on the carport side.

## STATE AND TERRITORY VARIATIONS

**In South Australia delete 3.7.1.6(d) and insert SA 3.7.1.6(d) as follows:**

- (d) A carport or verandah is exempt from (a), (b) and (c) if—
- (i) it has—
    - (A) two or more sides open and not less than one third of its perimeter open and, for the purpose of this clause, a side is considered to be open if the roof covering adjacent to that side is not less than 500 mm from another building or allotment boundary; or
    - (B) any part of the *external wall* of the Class 1 building located less than 2 m from the allotment boundary or less than 4 m from another Class 1 building on the same allotment is *fire-resisting* to the underside of a *non-combustible* roof covering or to the underside of a *non-combustible* ceiling lining (see **Figures SA 3.7.1.7a, SA 3.7.1.7b and SA 3.7.1.7c**); and
  - (ii) it has polycarbonate or *non-combustible* roof covering and any ceiling lining and wall cladding, including gables, is also *non-combustible* (see **Figure 3.7.1.7**); and
  - (iii) it does not provide direct vertical support to any part of the Class 1 building; and
  - (iv) in the case where it has a common roof structure with the Class 1 building and the carport or verandah does not have a ceiling (see **Figure 3.7.1.8**), the opening between the top of the wall of the Class 1 building and the underside of the roof covering is infilled with—
    - (A) a *non-combustible* material; or
    - (B) construction clad with *non-combustible* material on the carport or verandah side; and
  - (v) in the case where two carports or verandahs have a common roof structure with two different Class 1 buildings and the carports or verandahs have a ceiling, the roof space or ceiling space between the top of the ceiling and the underside of the roof covering is infilled as follows—
    - (A) vertically between the two Class 1 buildings and between the two appurtenant carports or verandahs in accordance with **SA 3.7.1.6(d)(iv)** (see **Figure SA 3.7.1.7d**); or
    - (B) vertically between the two Class 1 buildings and between the two appurtenant carports or verandahs in accordance with **SA 3.7.1.6(d)(iv)**, except that the construction must be clad with *non-combustible* materials on both sides and must not be crossed by timber or other *combustible* building elements except for roof battens with dimensions of 75 × 50 mm or less, roof *sarking-type material* or a timber gutter board not less than 20 mm thick.

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Figure SA 3.7.1.7a

Fire-resisting requirements for carports or verandahs without a ceiling

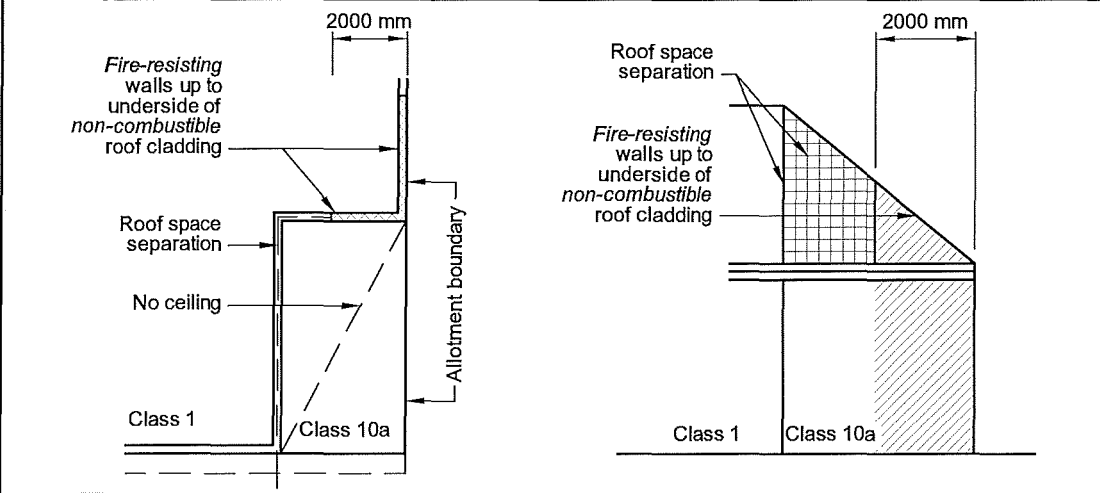
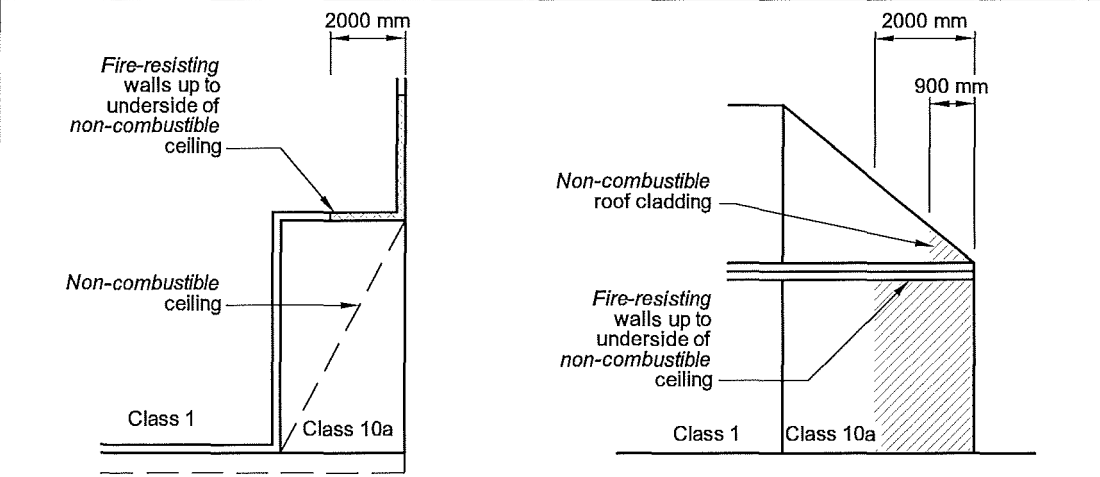


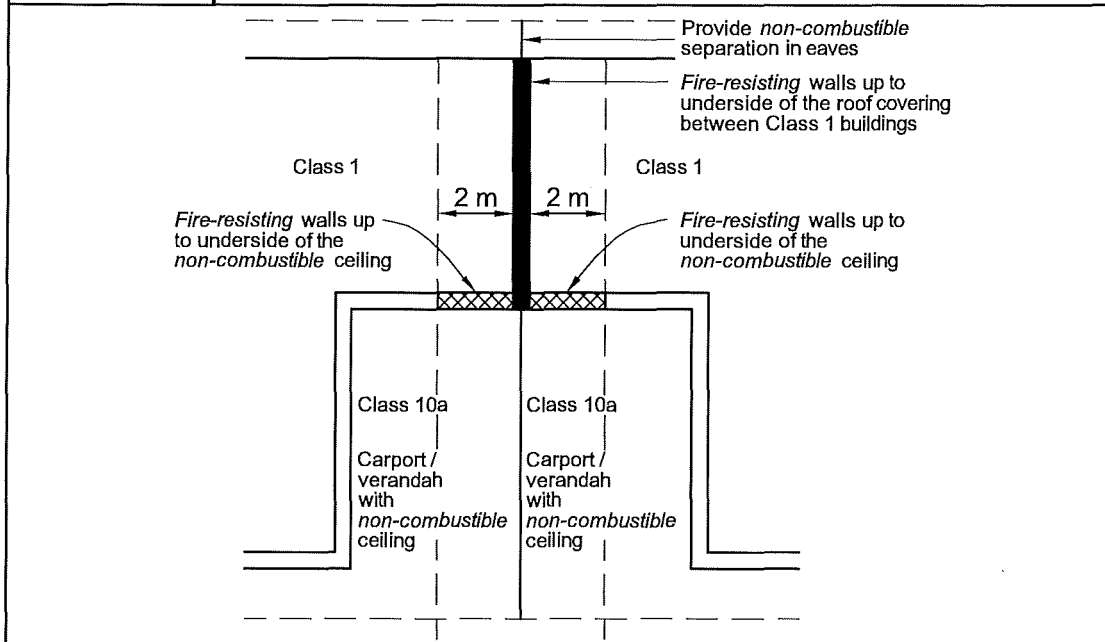
Figure SA 3.7.1.7b

Fire-resisting requirements for carports or verandahs with a non-combustible ceiling

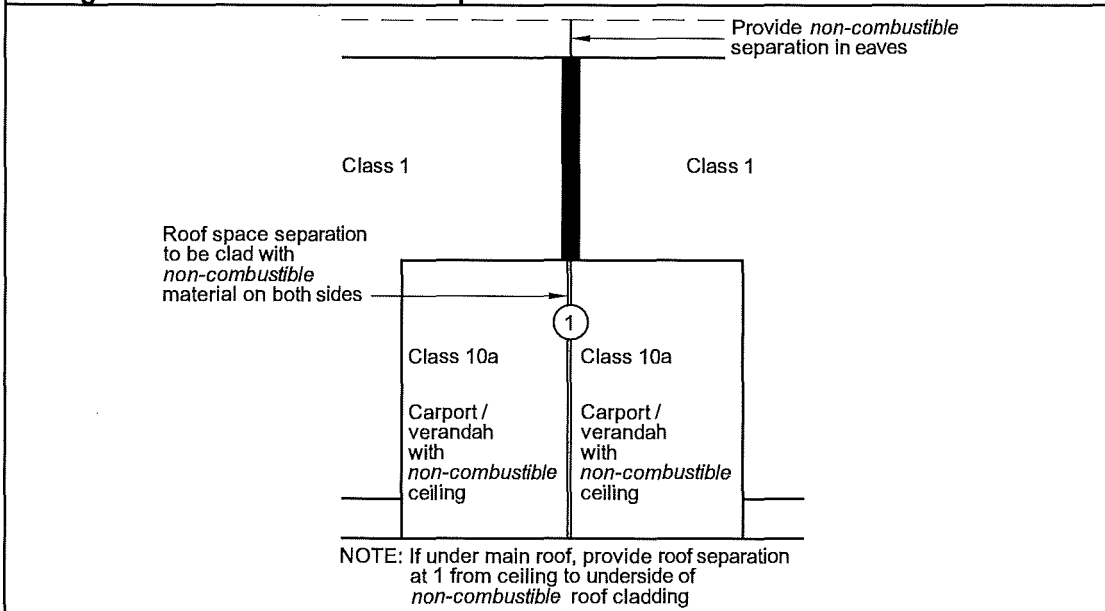


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**Figure SA 3.7.1.7c**  
**Fire-resisting requirements for external walls in carports and verandahs that share a common roof space**



**Figure SA 3.7.1.7d**  
**Fire-resisting requirements for roof space openings in carports and verandahs with a ceiling that share a common roof space**

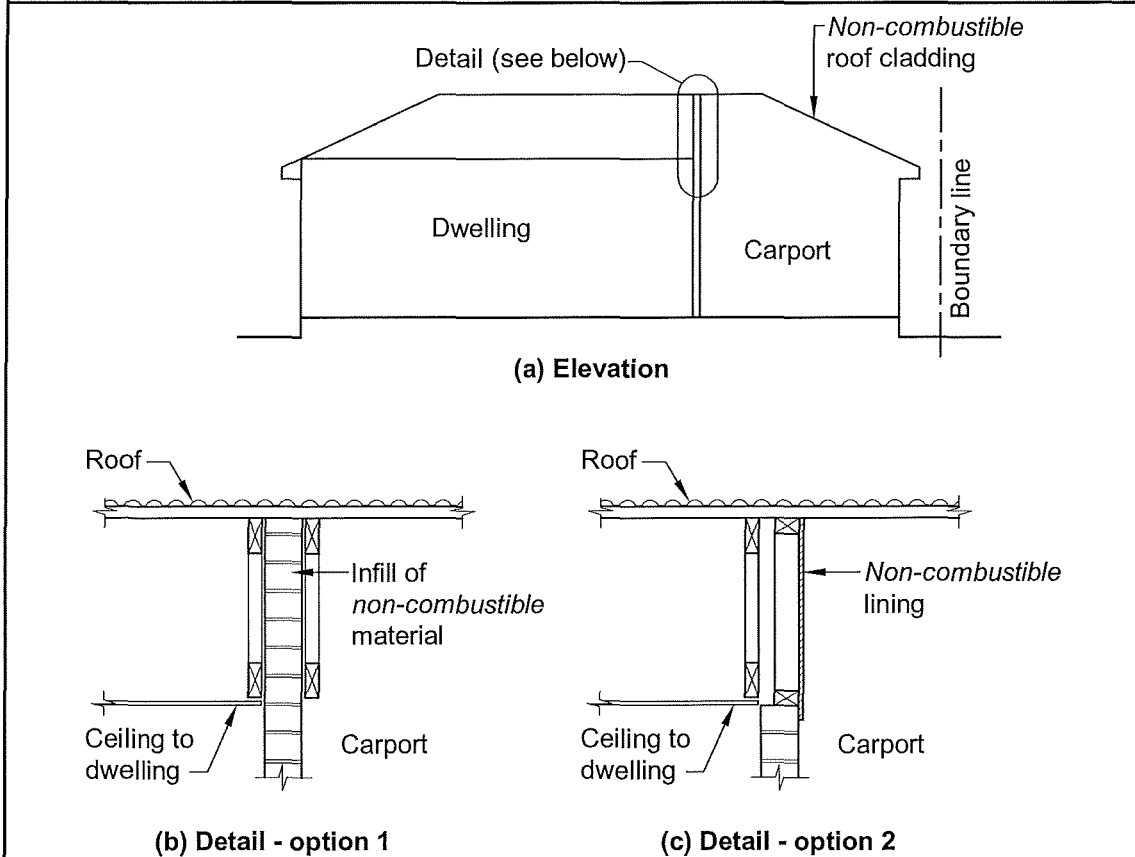




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Figure 3.7.1.8

## REQUIREMENTS FOR NON-COMBUSTIBLE INFILL PANELS TO CARPORT



- (e) Class 10a buildings must not significantly increase the risk of spread of fire between Class 2 to 9 buildings.

## STATE AND TERRITORY VARIATIONS

**In South Australia after 3.7.1.6(e) insert SA 3.7.1.6(f) and (g) as follows:**

- (f) A carport or verandah may have timber posts and timber roof support beams regardless of the distance from the boundary.
- (g) A Class 10b *brush fence* must not be constructed within 3 m of a Class 1 building unless any part of the building within 3 m of the *brush fence* complies with the *fire-resisting* requirements of 3.7.1.3, 3.7.1.4, 3.7.1.5 and 3.7.1.7.

## 3.7.1.7 Allowable encroachments

- (a) An encroachment is any construction between the *external wall* of the building and the allotment boundary other than a boundary adjoining a road or other public space, or the *external walls* of two buildings on the same allotment and relates to any *external wall* of—
- (i) a Class 10a building *required* to comply with 3.7.1.5; or
  - (ii) a Class 1 building.

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- (b) The encroachments allowed within 900 mm of an allotment boundary or within 1.8 m of another building on the same allotment are—
- (i) fascias, gutters and downpipes; and
  - (ii) eaves with *non-combustible* roof cladding and *non-combustible* lining; and
  - (iii) flues, chimneys, pipes, domestic fuel tanks, cooling or heating appliances or other services; and
  - (iv) light fittings, electricity or gas meters, aerials or antennas; and
  - (v) pergolas, sun blinds or water tanks; and
  - (vi) unroofed terraces, landings, steps and ramps, not more than 1 m in height.
- (c) Encroachments listed in (b)(i), if *combustible*, (b)(ii) and (b)(iii) must not be built within 450 mm of an allotment boundary nor be built within 900 mm of the *external wall* or associated encroachments of another building on the same allotment (see Figure 3.7.1.9).

**Explanatory information:**

A deck is not considered an unroofed terrace and is therefore not permitted as an allowable encroachment under 3.7.1.7(b) whether *combustible* or not.

The term pergola is a reference to an unroofed structure.

**STATE AND TERRITORY VARIATIONS**

**In South Australia delete 3.7.1.7 and insert SA 3.7.1.7 and Figure SA 3.7.1.9a as follows:**

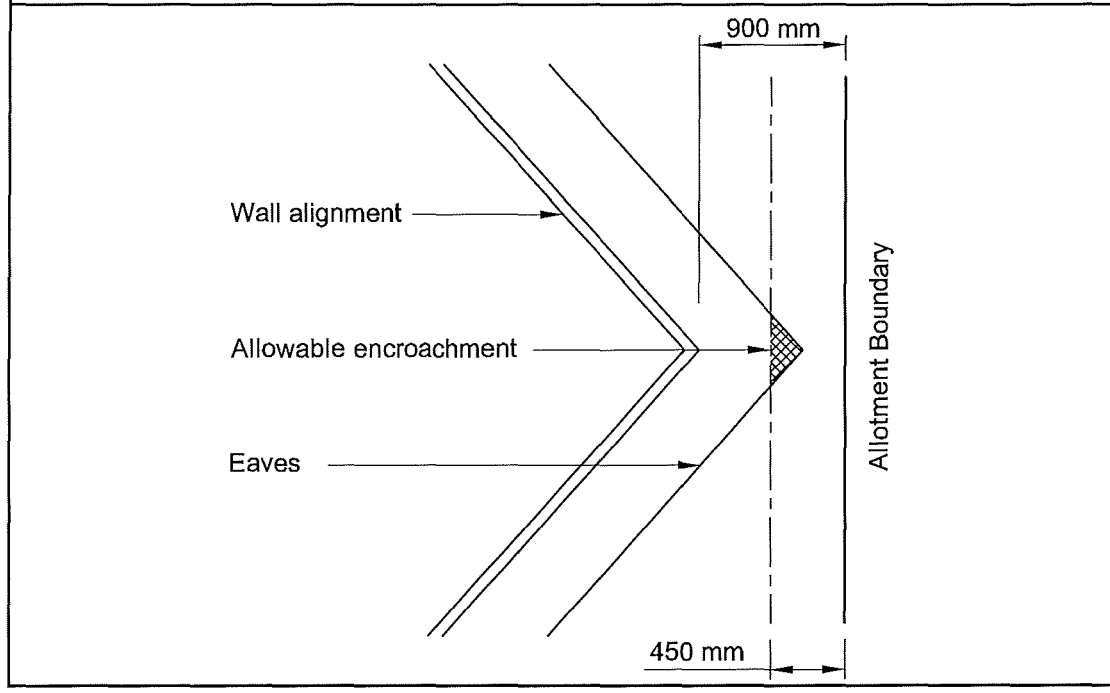
- (a) An encroachment is any construction between the *external wall* of the building and the allotment boundary other than a boundary adjoining a road or other public space, between the *external wall* of the building and a *brush fence*, or between the *external walls* of two buildings on the same allotment and relates to any *external wall* of—
- (i) a Class 10a building *required* to comply with 3.7.1.5; or
  - (ii) a Class 1 building.
- (b) The encroachments allowed within 900 mm of an allotment boundary, within 1.8 m of another building on the same allotment or within 3 m of a *brush fence* are—
- (i) fascias, gutters, downpipes; and
  - (ii) eaves with *non-combustible* roof cladding and *non-combustible* lining; and
  - (iii) flues, chimneys, pipes, domestic fuel tanks, cooling or heating appliances or other services; and
  - (iv) light fittings, electricity or gas meters, aerials or antennas; and
  - (v) pergolas, sun blinds or water tanks; and

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- (vi) unroofed terraces, landings, steps and ramps, not more than 1 m in height.
- (c) Except as permitted by (d) encroachments listed in (b)(i), if *combustible*, (b)(ii) and (b)(iii) must not be built within 450 mm of an allotment boundary nor be built within 900 mm of the *external wall* or associated encroachments of another building on the same allotment (see Figure 3.7.1.9).
- (d) Eaves with *non-combustible* roof cladding and *non-combustible* soffit or lining may encroach within 450 mm of the allotment boundary where the *external walls* of a building are located not less than 900 mm from the allotment boundary and the walls are positioned at an angle of not less than 20 degrees and not more than 70 degrees to the allotment boundary or other building and the eaves only encroach at the corner of the roof (see SA Figure 3.7.1.9a).
- (e) Fascias listed in (b)(i), if *combustible*, must not be built within 3 m of a *brush fence*.

Figure SA 3.7.1.9a

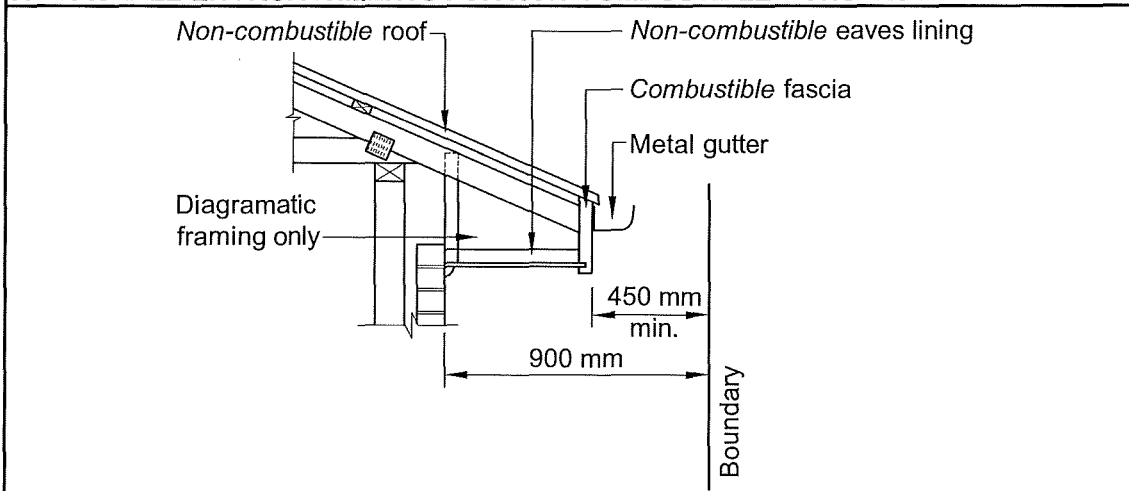
## Concession for encroachment of eaves



## FIRE SAFETY

Figure 3.7.1.9

## ALLOWABLE ENCROACHMENTS FOR NON-COMBUSTIBLE CONSTRUCTION



## 3.7.1.8 Separating walls

- (a) A *separating wall* between Class 1 buildings, or a wall that separates a Class 1 building from a Class 10a building which is not appurtenant to that Class 1 building must have an FRL of not less than 60/60/60 and—
- (i) commence at the footings or ground slab (see **Figure 3.7.1.10**); and
  - (ii) extend—
    - (A) if the building has a *non-combustible* roof covering, to the underside of the roof covering (see **Figure 3.7.1.10** and **Figure 3.7.1.11**); or
    - (B) if the building has a *combustible* roof covering, to not less than 450 mm above the roof covering (see **Figure 3.7.1.10**).
- (b) Where parts of a Class 1a dwelling are located above a Class 10a *private garage* which is not appurtenant to that Class 1a dwelling, any wall separating parts of the Class 1a dwelling from a non-appurtenant *private garage* must—
- (i) have an FRL of not less than 60/60/60 when tested from the non-appurtenant *private garage* side; and
  - (ii) extend to the underside of a separating floor complying with 3.7.1.11.
- (c) A *separating wall of lightweight construction* must be tested in accordance with **Specification C1.8** of the BCA Volume One.

## STATE AND TERRITORY VARIATIONS

**In New South Wales delete 3.7.1.8(b) and insert NSW 3.7.1.8(b) as follows:**

(b) \* \* \* \* \*

**Note:** The New South Wales Additions contain requirements for a Class 1a dwelling located above a non-appurtenant Class 10a *private garage*.