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11 March 2019

Sarah Skinner, Simon Halpin & Virginia Halpin
60 Pittwater Road,
Manly NSW 2095
C/- Three Corners Design (Attention: Candice Christensen)

Dear Candice,

Re: 60 Pittwater Road, Manly – BCA Advice

This document provides a schedule of BCA Fire Safety information for the new works only outlining details to be included in documents for submission with the CC in response to a request for information by the Certifier. The proposal is additions / alterations to an existing 3 storey building containing 2 dwellings.

1. Current Building Layout and Proposal

The plans reviewed for the proposed works are as detailed in Drawing Nos. 02 to 05, Revision D, dated 13 April 2018 prepared by Three Corners Design. This includes;

- a) Ground Floor (Lower Dwelling) – Existing Dwelling with addition of Study and Bedroom 2 to the southern boundary. Demolition of internal walls and new internal layout. New window to proposed kitchen area.
- b) First & Second Floor (Upper Dwelling) – Reduced ceiling height of Bedroom 1 at First Floor level. Addition of bedroom and balcony at Second Floor level. This includes some new external walls and new roof to the addition. Relocate one of the existing skylights.

2. BCA Description

For the purposes of the BCA, the building may be described as follows:

a) Classification

The building is classified as follows:

- Class 2 (Residential Sole Occupancy Units)

b) Rise in Storeys

The building has a rise in storeys of Three (3).

c) Type of Construction

The building is required to be of Type A Construction.

d) Effective Height

The building contains an effective height of less than 12m.

e) Floor Area / Volume

No floor area or volume sizes are applicable to Class 2 Sole Occupancy Units.

f) Fire Source Feature

The distances from the nearest Fire Source Features (FSF) for the building are:

- Northern Boundary - < 3.0 metres (i.e. approx. nil)
- Western Boundary - > 6.0 metres to far side of Pittwater Road
- Southern Boundary - < 3.0 metres (i.e. approx. nil)
- Eastern Boundary - > 3.0 metres

3. BCA Assessment and Comments

Following an inspection of the building on 11 February 2019, the following assessment of the proposed works identifies areas in relation to the BCA Fire Safety Provisions to confirm how compliance may be achieved.

The assessment includes a review of DA plans prepared by Three Corners Design, Drawing Nos. 02 to 05, Revision D, dated 13 April 2018.

A. Type A Construction - Fire Resistance Levels (FRL's)

As a result of the building having a Rise in Storeys of three (3), therefore Type A Construction applies and the building elements are required to contain a certain Fire Resistance Level (FRL) in accordance with Specification C1.1 and Table 3 (extract) of the BCA as detailed below:

The following additional information is provided:

- (a) External walls must be of non-combustible construction.
- (b) Internal loadbearing walls must be of concrete or masonry construction.
- (c) Internal walls required to have an FRL, with respect to integrity and insulation, must extend to the underside of the floor next above, or the underside of a ceiling with a resistance to the incipient spread of fire or non-combustible roof covering in accordance with subclause (e) below.
- (d) Non-loadbearing walls required to have an FRL must be non-combustible construction.
- (e) Roof need not have an FRL where its covering is non-combustible and the ceiling immediately below the roof has a resistance to the incipient spread of fire to the roof space of not less than 60 minutes, or the building is Class 2.
- (f) Internal loadbearing walls in the top floor may have a reduced FRL of 60/-/-.

BUILDING ELEMENT	Class 2
EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is – For loadbearing parts- less than 1.5m 1.5m to less than 3m 3m or more For non-loadbearing parts less than 1.5m 1.5 to less than 3m 3m or more	90/90/90 90/60/60 90/60/30 -/90/90 -/60/60 -/-/-
EXTERNAL COLUMN not incorporated in an external wall, Loadbearing parts Non-loadbearing parts	90/-/- -/-/-
INTERNAL WALLS Between or bounding SOU's. Bounding public corridors, public lobby or the like– • Loadbearing parts • Non-loadbearing parts	90/90/90 -/60/60
OTHER LOADBEARING INTERNAL WALLS AND COLUMNS Internal walls & columns, except in storey below roof	90/-/-
FLOORS	90/90/90

BCA Table 3 (extract) – Fire Resistance Levels

B. External Walls, Internal Walls and Columns - FRL's.

The following Fire Resistance Levels and requirements applies to the new works;

- a) **External Walls & Columns incorporated therein** in a building of Type A located from the boundary (or FSF) must be as follows;
- (i) Loadbearing walls are required to achieve an FRL of 90/60/60 (up to 3.0m from FSF) or 90/60/30 (> 3.0m from FSF). This fire rating must be measured internally and externally.
 - (ii) Fire rated external wall construction must be non-combustible.
 - (iii) A lintel must have the FRL required for the part of the building in which it is situated, unless it spans an opening in masonry which is not more than 150mm thick and;
 - Not more than 3.0m wide if the masonry is non-loadbearing, or
 - Not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall.
 - (iv) Non-loadbearing external walls more than 3.0m from the boundary (or FSF) are not required to have an FRL.

- b) **Internal loadbearing walls, beams and columns** are required to have an FRL of 90/-/- except for the top floor an FRL of 60/-/- is permitted for walls and columns. This relates to internal load-bearing walls throughout the building. Internal loadbearing walls must be of concrete or masonry construction.

Internal non-loadbearing walls generally need not have an FRL, except where they are separating dwellings. New works are not proposed to walls separating dwellings.

C. **Vertical Separation of Openings in External Walls.**

Openings in external walls of a building of Type A Construction must be separated from openings in the storey next below either by 900mm high vertical spandrel panels or 1100mm horizontal projections no less than 450mm beyond the relevant openings as shown in Figure 1 below.

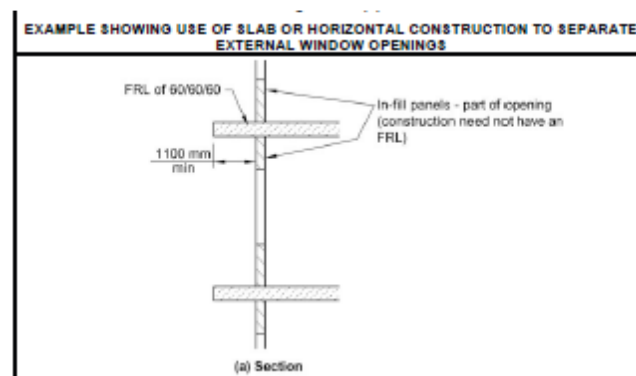


Figure 1 – Horizontal Projection (Spandrel)

Vertical separation of openings in external walls at different storeys must be separated with fire rated spandrel construction having an FRL of 60/60/60 (both sides of wall) in accordance with BCA Clause C2.6. A 900mm high vertical spandrel must extend 600mm above the intervening floor as shown in Figure 2 below.

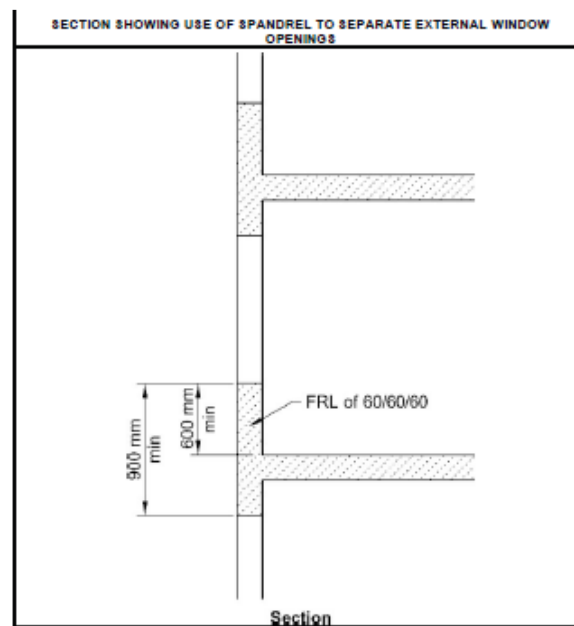


Figure 2 – Vertical Spandrel

Comment:

This predominantly applies to the following external walls containing windows at First Floor above proposed Ground Floor new windows with walls to be confirmed as having fire rated construction as detailed in Figure 2 as follows: -

- (i) Ground Floor proposed kitchen window W1 has a First Floor window above. The existing construction above W1 should be reviewed to confirm the wall achieves an FRL of 60/60/60 measured at least 600mm above the intervening floor with a total height of at least 900mm.
- (ii) Ground Floor proposed infill windows to street entry area has First Floor windows above. The existing construction above W1 should be reviewed to confirm the wall achieves an FRL of 60/60/60 measured at least 600mm above the intervening floor with a total height of at least 900mm.

D. Protection of Openings in External Walls.

Openings in the external walls of a building of Type A Construction located less than 3.0m from the side boundaries are to be protected in accordance with Clause C3.4 of the BCA. The method of protection required by the BCA is either by;

- Installing fire rated windows with an FRL of -/60/- that are automatic closing or permanently shut (eg fire rated glass blocks), or
- Automatic closing fire rated shutters with an FRL of -/60/-, or
- External wall wetting drenchers on fixed / automatic closing windows, or
- Fire doors (FRL of -/60/30), or self-closing doors with external wall wetting drenchers, or
- Protection is not required where the window is shielded by a blade wall contained wholly on the subject premises as follows: -
 - (i) The wall must extend to a height of at least the top of the subject window opening and for a length so that the opening is not exposed by a direct line of at least 3.0m from the boundary line, and
 - (ii) The wall is constructed of materials to achieve an FRL of 30/-/-, measured on both sides, and is neither transparent or translucent.

Comment:

There are proposed window openings in the external walls that are less than 3.0m from the side boundaries as follows; therefore require protection.

- a) Ground Floor windows W1 and W2. See above for options. This could also include a combination of options, e.g. blade wall for openable windows / doors and fixed glass above these openings with the fixed glass protected as detailed above.
- b) Ground Floor windows W3. The DA plan shows a privacy wall extending along the southern boundary of the site. This wall could provide shielding so that this window need not be protected, subject to the wall being detailed as noted above:
- c) Second Floor windows W4 and W5. Could also include a combination of these options.

The CC plans require details for the proposed windows using one of the methods outlined above to achieve compliance with the BCA Deemed-to-Satisfy Provisions or is to be addressed in an Alternative Solution Report prepared by a C10 Accredited Fire Engineer. This later method would include addressing the BCA Performance Requirements and need to incorporate costs of such a Report, increased Certifier fees and also increased costs for works to satisfy the BCA Performance Requirements.

E. Internal Floor Separating SOU's (Fire Rating).

The floor separating the Ground Floor Dwelling from the First Floor is required to be provided with a fire rating having an FRL of 90/90/90. This is measured from the underneath the floor and includes the new ceiling of the study and bedroom 2 plus any beams incorporated therein for the new works. See also below Item 'F' (Service Penetration).

F. Penetration of Services in Fire Rated Building Elements.

Where electrical, plumbing or other services pass through an element of construction required to have an FRL, the installation must be installed so as not to compromise the elements fire rating. This relates to new works to the floor and walls separating the Dwellings.

Comment:

There are penetrations in the existing ceiling above Ground Floor Dwelling, such as the downlights which requires protection with fire covers to maintain this FRL.

G. Fire Hydrant System.

A building that has a floor area greater than 500m² must be provided with a fire hydrant system in accordance with Clause E1.3 of the BCA and AS 2419.1 - 2005.

Comment:

The building floor area is assumed to be less than 500m², therefore the building is not required to be provided with a fire hydrant system.

H. Portable Fire Extinguisher/s.

A Class 2 building must be provided with portable fire extinguishers in accordance with BCA Clause E1.6 and AS2441-2004.

I. Smoke Alarm.

A Class 2 building (dwelling) must be provided with hard wired smoke/s alarm in accordance with AS3786 - 2014. The smoke alarms must be located on or near the ceiling of every storey between each part of the SOU containing bedrooms and the remainder of the SOU, and where bedrooms are served by a hallway, in that hallway. The smoke alarms on each storey of the same SOU must be interconnected. The smoke alarms in different SOU's are not required to be interconnected.

Comment:

There are existing smoke alarms within the Dwellings that require upgrading or modification as follows: -

- a) Ground Floor - Hard wired smoke alarm to be provided in the corridor outside the bedrooms.
- b) First and Second Floor - Hard wired smoke alarm to be provided at First Floor in the corridor outside the bedrooms that is interconnected with a hard wired smoke alarm outside the bedroom of the Second Floor.

J. Schedule of Essential Fire Safety Measures (Existing and Proposed)

The building is currently provided with the following existing essential fire safety measures and it is recommended that the building be provided with the following proposed essential fire safety measures, capable of performing and being maintained to the standard listed in the Schedule below. For the purposes of Clause 168 of the Environmental Planning and Assessment Regulation 2000, these standards will be considered to be the current fire safety schedule for the building.

SCHEDULE

Measure	Design/ Installation Standard	Existing Installation	Proposed Installation
Fire Seals	Manufacturers Specification, BCA Clause C3.15, AS1530.4 – 2014 & AS4072.1 – 2005	?	✓
Portable Fire Extinguishers	BCA Clause E1.6 & AS2444 – 2001	-	✓
Protection of Openings in External Walls	BCA Clause C3.2, Specification C3.2 and Method of protection to be confirmed.	-	✓
Smoke Alarm/s within each dwelling	BCA Specification E2.2a and AS3786 –2014	?	✓

4. Limitations:

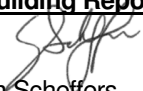
This report and assessment does not address issues in relation to the following:

- The recommendations are not intended to assess the existing building or fully assess proposed building works except to provide a schedule of BCA Fire Safety details to assist design development.
- Review or assessment of materials and finishes (except where noted herein). This is at the discretion and determination of the Certifier.
- The BCA Structural Provisions of the building elements (unless specifically referred to).
- The design, maintenance or operation of any existing or proposed electrical, mechanical, hydraulic or fire protection services.
- Development Consent conditions of approval issued by the Consent Authority.
- Environmental Planning and Assessment Act, associated Regulations, Local Government Act and Regulations unless where nominated.
- Work Health & Safety Act / Regulations and WorkCover Authority requirements.
- Water, drainage, gas, telecommunications and electricity supply authority requirements.
- Disability Discrimination Act (DDA) and Premises Standard.

Should you require any further details, please do not hesitate to call me on 0417 247 447.

Yours faithfully,

GRS Building Reports Pty Ltd.


Graham Scheffers