METRO BUILDING CONSULTANCY

HOMES NSW
48 NEW ORLEANS CRESCENT
MAROUBRA NSW 2035

BUILDING CODE OF AUSTRALIA 2022
UPDATED STAGE C CONCEPT DESIGN REVIEW
JUNE 2024

Report prepared for		Homes NSW Locked Bag 4009, Ashfield NSW 1800
	Attention:	Patrick Koe
Report prepared by		Metro Building Consultancy Suite 15.14, 60 Station Street Parramatta 2150 Consultant: Sean Moore
Report reference		23192R04
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METRO BUILDING CONSULTANCY

CONTENTS

DOCUMENT ACCEPTANCE

Company	Name	Signed	Date
Metro Building Consultancy	Sean Moore		21/06/2024

REVISION HISTORY

Description	Prepared by	Revision No.	Date
Stage B Concept Design BCA Report	Anthony Marelic	R01	23/01/2024
Stage C Concept Design BCA Report	Anthony Marelic	R02	08/03/2024
Updated Stage C Concept Design BCA Report	Anthony Marelic	R03	12/06/2024
Updated Stage C Concept Design BCA Report	Anthony Marelic	R04	21/06/2024

1.0 Introduction and Documentation

Homes NSW have requested Building Code of Australia advice in relation to LAHC Maroubra project located at 48 New Orleans Crescent Maroubra NSW 2035.

The information submitted to date has been reviewed for compliance with the deemed-to-satisfy provisions of Section C, D, E and F of the Building Code of Australia 2022 excluding Section B (Structure by Structural Engineer), Part D4 and Part G7 Liveable Housing Design (Disabled Access by Access Consultant), Part F7 (Sound Transmission & Insulation by Acoustic Engineer), Part G5 (Bushfire by Bushfire Consultant if applicable) and Section J (Energy Efficiency/BASIX by ESD Consultant).

The methodology is principally a desktop review of the drawings provided as listed in Appendix A. This report is for the exclusive use of the NSW Land and Housing Corporation and cannot be used for any other purpose without the prior permission of Metro Building Consultancy. The report is only valid in its entire form.

Documentation available and assessed.

The architectural drawings provided by Integrated Design group to Metro Building Consultancy as referenced in Appendix A have been assessed for compliance to the Building Code of Australia.

2.0 Use and class of building

The proposed buildings, as taken from the drawings provided, has the following characteristics:

Storey	Use	Classification	Area
Ground floor	Apartments and on under croft carpark	2 and 7a	194m²
Level 01	Apartments	2	193m²
Level 02	Apartments	2	193m²

The BCA definition of the floor area of a fire compartment means the total area of all floors within the fire compartment measured within the finished surfaces of the bounding construction, and if there is no bounding construction, includes an area which has a use which contributes to the fire load.

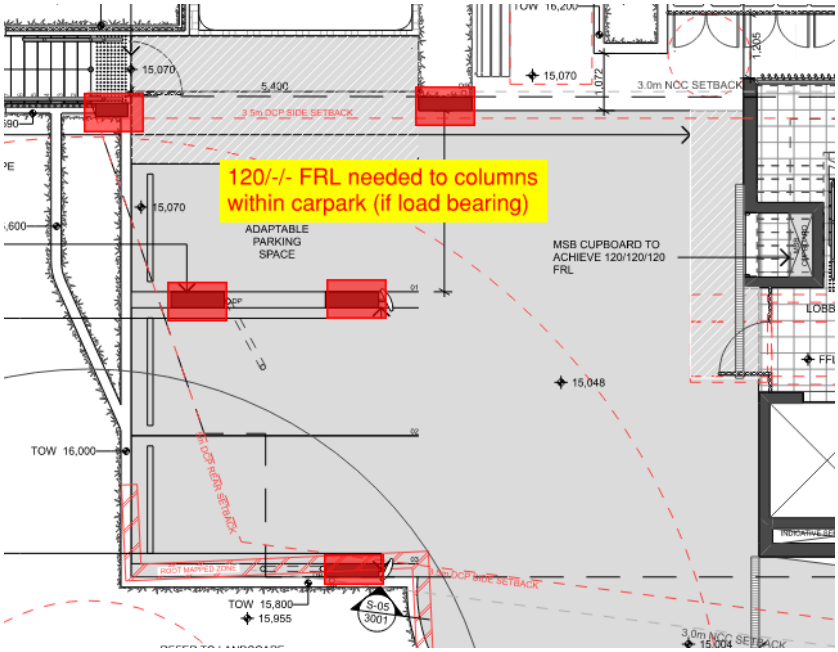
The BCA definition of the fire load means the sum of the net calorific values of the combustible contents which can reasonably be expected to burn within a fire compartment, including furnishings, built-in and removable materials, and building elements. The calorific values must be determined at the ambient moisture content or humidity. (The unit of measurement is MJ.)

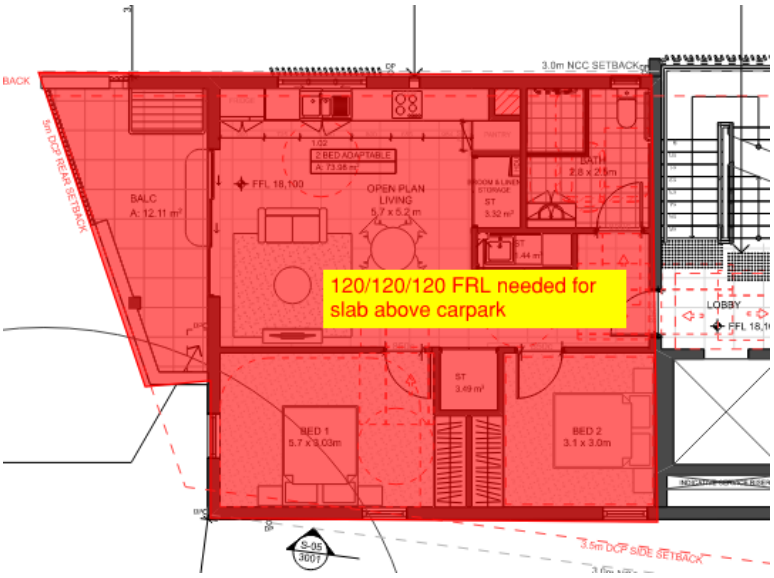
The assessment of the floor area of the fire compartment includes the under-croft carpark as contribute to the fire load (contains cars, exposed insulation, timber battens etc).

As such the floor area of the building is more than 500m2 and requires a fire hydrant system. A fire hydrant booster has been proposed on the drawings.

The under-croft carpark on the ground floor is more than 10% of the floor area as such the external elements supporting the carpark requires an FRL or 2 hours rather than 90 minutes needed for the residential units.

Under BCA Clause C3D10 the floor between the adjoining parts must have an FRL not less than the storey below. As the storey below level 1 is carpark then the residential floor slab is required to achieve the FRL of the storey below which is 120/120/120.





Rise in Storeys and Effective Height of the proposed building

BCA assessment of the rise in storeys of the building is currently 3 storeys. No sprinkler system is required as the building doesn't have a rise in storeys of 4.

The effective height of the building is 6.2m.

3.0 Construction and fire resistance ratings

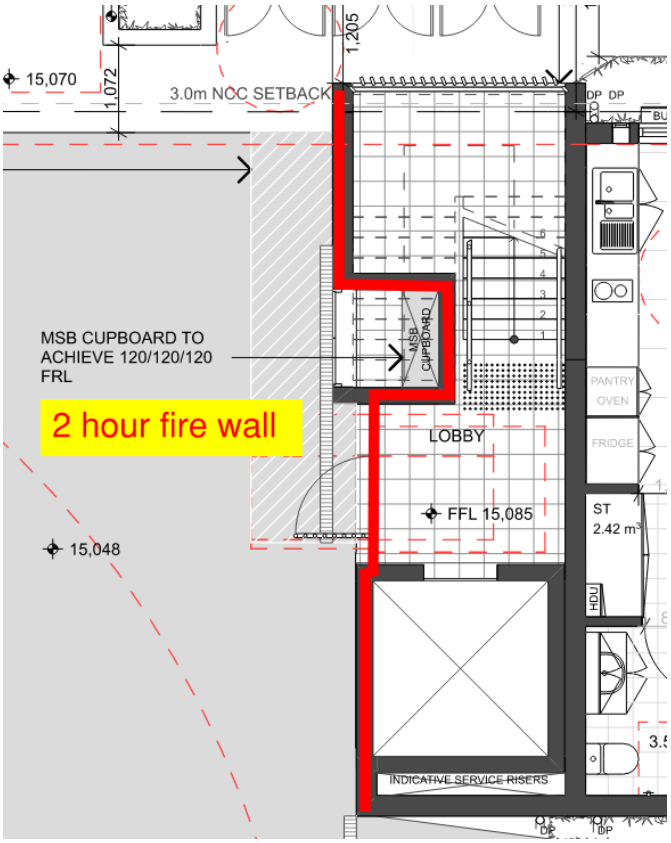
A Class 2 and 7a building with a rise in storeys of 3 and are required to comply with the Building Code of Australia's Type A construction requirements as seen in Appendix B.

As the ground floor is made up of residential unit and carpark it is required to have the FRLs of a Class 2 and 7a.

Under C3D9 1(a) the whole floor can be built to the higher FRL which is the class 7a carpark classification. This would mean that a 2-hour fire rated construction to building elements is required throughout in lieu of 90-minute construction typically needed for residential units.

Or under BCA Clause C3D9 1(b) the classification on the same story can be separated with a 2 hour fire wall with any openings protected.

The remainder of the building is residential dwelling which is required to have the FRLs of a Class 2.



Comments in relation to the general fire resisting construction requirements

Exposure to a fire source feature

A part of a building element is exposed to a fire-source feature if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that has an FRL of not less than 30/–/–.

Fire-source feature means—
(a) the far boundary of a road, river, lake or the like adjoining the allotment; or
(b) a side or rear boundary of the allotment; or
(c) an external wall of another building on the allotment which is not a Class 10 building.

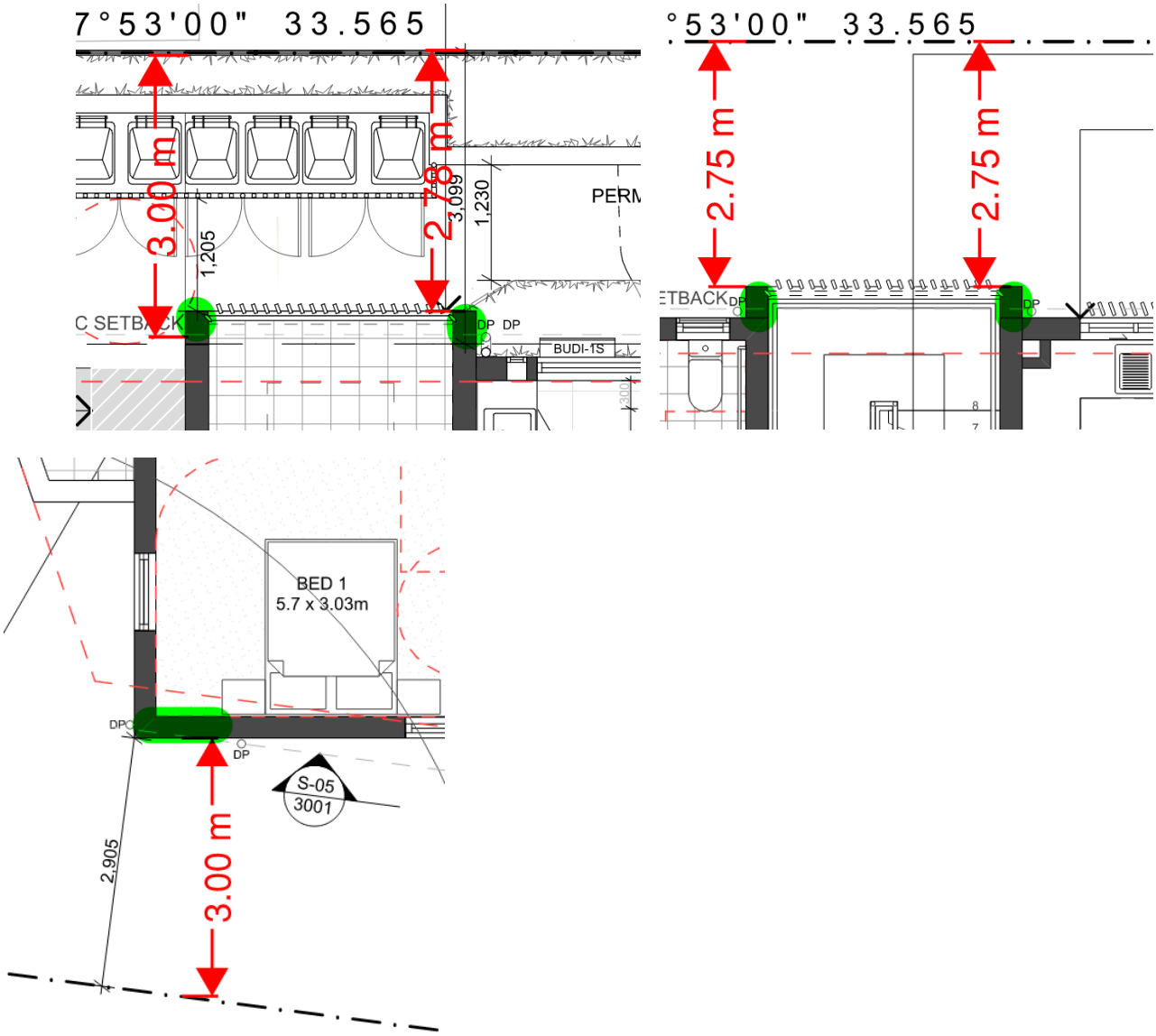
Openings less than 3m from a side boundary in an external wall required to have an FRL are required to be protected in accordance with C4D5.

Parts of the northern and southern wall that are within 3m from the boundary triggers the wall to have a higher FRL than the other parts of the wall that are more 3m away from the boundary.

The off-form concrete doesn't provide support to the external wall as such is considered non-load bearing but will still require an FRL as its within 3m from the boundary.

External Louvres can be considered an attachment to the wall and only need to be non-combustible and don't need to be fire rated.

It is required that the building is built in accordance with Type A fire resisting construction requirements as referenced in appendix B.



Fire protection for a support of another part

The BCA states that where a part of a building required to have an FRL depends upon direct vertical or lateral support from another part to maintain its FRL, that supporting part, subject to must:

(i) have an FRL not less than that required by other provisions of this Specification; and

(ii) if located within the same fire compartment as the part it supports have an FRL in respect of structural adequacy the greater of that required—

(A) for the supporting part itself; and
(B) for the part it supports; and

(iii) be non-combustible—

(A) if required by other provisions of this Specification; or
(B) if the part it supports is required to be non-combustible.

The following building elements need not comply with the 'fire protection for a support of another part' requirements:

- An element providing lateral support to a concrete external wall that could collapse as complete panels (e.g. tilt-up and pre-cast concrete).
- A roof providing lateral support in a building of Type B construction.
- A column providing lateral support to a wall where the column is a steel column, other than one in a fire wall or common wall, in a building that contains only 1 storey.
- An element providing lateral support to a fire wall or fire-resisting wall, provided the wall is supported on both sides and failure of the element on one side does not affect the fire performance of the wall.

Structural Engineer to confirm what parts of the building are supported by external and internal columns as they will need to achieve the same FRL as the part of the building they are supporting.

Method of attachment not to reduce the fire-resistance of building elements

The method of attaching or installing a finish, lining, ancillary element, or service installation to the building element must not reduce the fire-resistance of that element to below that required.

Enclosure of shafts

Shafts required to have an FRL must be enclosed at the top and bottom by construction having an FRL not less than that required for the walls of a non-loadbearing shaft in the same building, except that these provisions need not apply to:

- the top of a shaft extending beyond the roof covering, other than one enclosing a fire-isolated stairway or ramp; or
- the bottom of a shaft if it is non-combustible and laid directly on the ground

This applies to fire stair shafts, lift shaft and any services shafts eg mechanical services shafts, they must be enclosed at the top with the same FRL as the walls of the shaft or extend above the roof. Note that where proposed, a garbage chute shaft must be enclosed at its base (ie the garbage room) in construction that achieves an FRL of not less than -/90/90.

Lintels

A lintel must have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and –

(a) It spans an opening in
  (i) A wall of a building containing only one storey; or
  (ii) A non-loadbearing wall of a Class 2 or 3 building; or
(b) It spans an opening in masonry which is not more than 150mm thick and –
  (i) Not more than 3m wide if the masonry is non-loadbearing; or
  (ii) 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

Compliance achievable – Structural Engineer to note the requirements where applicable.

Comments in relation to the Type A Construction requirements

Fire rating of external walls

The loadbearing parts of the external wall are required to be provided with the fire resistance level in the table in Appendix B.

The non-loadbearing off form concrete attached the to the external wall are required to be provided with the fire resistance level in the table in Appendix B.

Structural engineer has confirmed that the loadbearing walls and columns will achieve the required FRL as per Type A Construction table in Appendix B.

Internal fire rated walls

Any internal wall 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 fire rated roof; or
- if the roof is not required to be fire rated, the underside of the non-combustible roof covering and, except for roof battens with dimensions of 75 mm x 50 mm or less or sarking-type material, must not be crossed by timber or other combustible building elements; or
- a ceiling that is immediately below the roof and has a resistance to the incipient spread of fire to the roof space between the ceiling and the roof of not less than 60 minutes.

Please ensure the fire walls between SOUs go to the underside of the floor/roof above not just the ceiling.

Loadbearing walls

A loadbearing internal wall and a loadbearing fire wall (including those that are part of a loadbearing shaft) must be constructed from concrete or masonry.

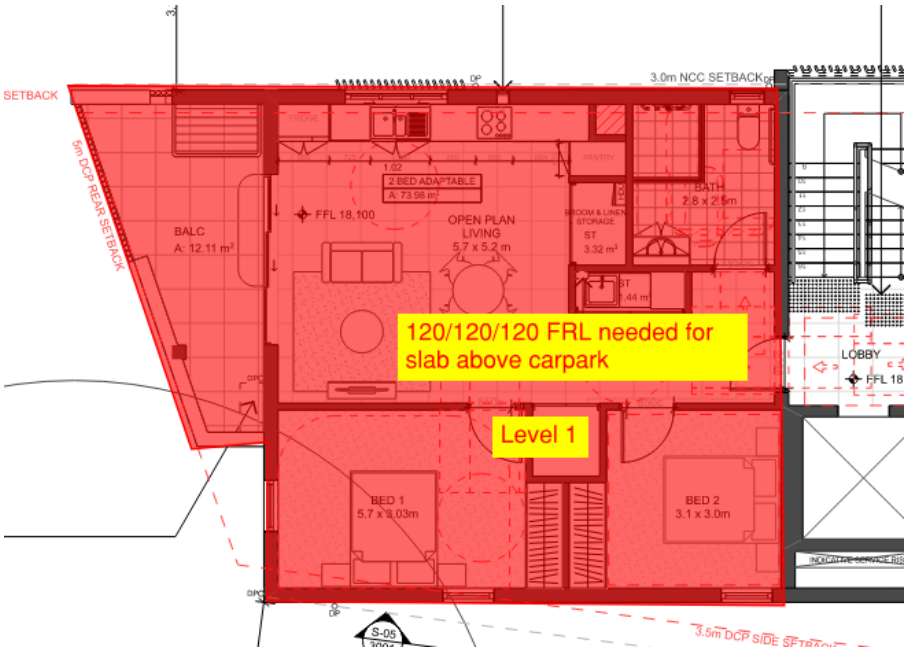
Floors

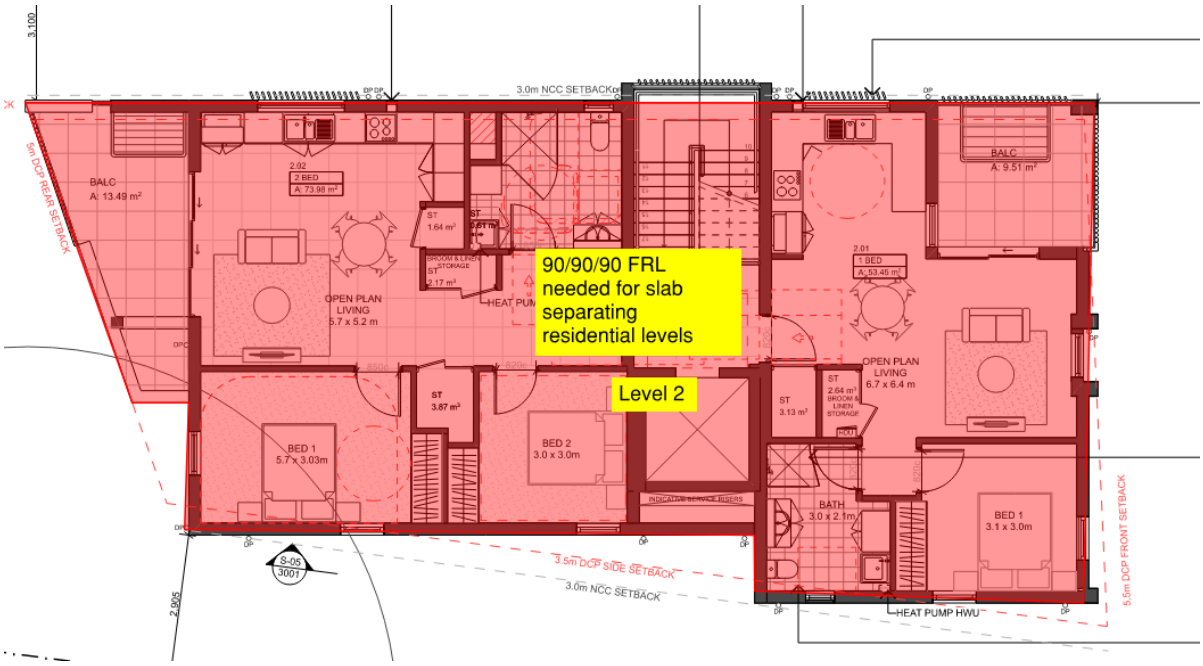
Note that a floor need not be fire rated if it is laid directly on the ground.

During design development provide a detail of how the fire rated floor slab separating storeys connects to the façade and creates the fire separation required between floors.

The slab separating the carpark and apartment requires and FRL of 120/120/120.

The slabs separating the apartment require an FRL of 90/90/90.





Roof

The BCA states that the roof of a building of Type A Construction is not required to be provided with an FRL of 90/60/30 as long as its covering is non-combustible and the building:

(a) has a sprinkler system complying with Specification 17 installed throughout (other than a FPAA101D or FPAA101H system); or
(b) has a rise in storeys of 3 or less; or
(c) is of Class 2 or 3; or
(d) has an effective height of not more than 25 m 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

Non-combustible means—
(a) applied to a material — not deemed combustible as determined by AS 1530.1 — Combustibility Tests for Materials; and
(b) applied to construction or part of a building — constructed wholly of materials that are not deemed combustible.

The proposed roof to the apartment levels is permitted to be only non-combustible as the building has a rise in storeys of 3.

Roof lights

Where proposed, rooflights or the like installed in the roof must—
(a) have an aggregate area of not more than 20% of the roof surface; and
(b) be not less than 3 m from—
(i) any boundary of the allotment other than the boundary with a road or public place; and

(ii) any part of the building which projects above the roof unless that part has the FRL required of a fire wall and any openings in that part of the wall for 6 m vertically above the rooflight or the like are protected in accordance with SPECIFICATION 12; and
(iii) any rooflight or the like in an adjoining sole-occupancy unit if the walls bounding the unit are required to have an FRL; and

(iv) any rooflight or the like in an adjoining fire-separated section of the building; and
(c) if a ceiling with a *resistance to the incipient spread of fire* is *required*, be installed in a way that will maintain the level of protection provided by the ceiling to the roof space

Internal walls & columns

For a building with an effective height of not more than 25 m and having a roof without an FRL in accordance with S5C15, in the storey immediately below that roof, internal columns other than those referred to in S5C11(1)(d) (ie external column apply also to those parts of an internal column that face and are within 1.5 m of a window) and internal walls other than fire walls and shaft walls may have an FRL 60/60/60 for Class 2 or 3 buildings.

Lightweight construction

Lightweight construction required to have an FRL must comply with BCA Clause C2D9 and BCA Specification 6

Non-combustible building elements

In a building required to be of Type A Construction, the following building elements and their components must be non-combustible –

- External walls and common walls, including all components incorporated within them including the façade covering, framing and insulation
- The flooring and floor framing of lift pits
- Non-loadbearing internal walls where they are required to be fire resisting

A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction.

A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification 5.

The external walls of the proposed building are required to be non-combustible i.e. be constructed of a material that is not deemed combustible by AS1530.1 1994 or has a CodeMark Certificate of Conformity confirming compliance to BCA CP2 and CP4. Provide details of the make up of the external walls for review in the design development stage. Architect and Structural Engineer to note for the selection of any external wall systems may not meet the Deemed-to-Satisfy provisions.

Architect and Structural Engineer to note for the selection of any external wall systems may not meet the Deemed-to-Satisfy provisions.

Fire Hazard Properties

The fire hazard properties of the following internal linings, materials and assemblies are to comply with the requirements of Clause specification 5 and Specification 5 of Building Code of Australia.

- Floor linings and floor coverings
- Wall linings and ceiling linings
- Air-handling ductwork
- Lift cars

Provide the laboratory test results for the fire hazard indices of the various floor, wall and ceiling finishes prior to the completion of the design development and prior to the issue of the Crown Works Certificate.

Ancillary elements

An ancillary element must not be fixed, installed, attached to or supported by the concealed internal parts or external face of an external wall that is required to be non-combustible unless it is one of the following:
(a) An ancillary element that is non-combustible.
(b) A gutter, downpipe or other plumbing fixture or fitting.
(c) A flashing.
(d) A grate, grille or similar cover not more than 2 m2 in area associated with a building service.
(e) An electrical switch, socket-outlet, cover plate or the like.
(f) A light fitting.
(g) A required sign.
(h) A sign other than one provided under (a) or (g) that—
(i) achieves a group number of 1 or 2; and
(i) does not extend beyond one storey; and
(ii) does not extend beyond one fire compartment; and
(iii) is separated vertically from other signs permitted under (h) by at least 2 storeys.
(i) An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that—

(ii) meets the relevant requirements of Table S7C7 as for an internal element;
and serves a storey—
(A) at ground level; or
(B) immediately above a storey at ground level; and
(iii) does not serve an exit, where it would render the exit unusable in a fire.
(j) A part of a security, intercom or announcement system.
(k) Wiring.
(l) Waterproofing material installed in accordance with AS 4654.2 and applied to an adjacent floor surface, including vertical upturn, or a roof surface.
(m) Collars, sleeves and insulation associated with service installations.
(n) Screens applied to vents, weepholes and gaps complying with AS 3959.

Architect to note and ensure any attachments fixed, installed, attached to or supported by the concealed internal parts or external face of an external wall that is required to be non-combustible by means of AS1530.1 or CodeMark Certification.

Compartmentation

The BCA does not have a fire compartment limit for the apartments.

Vertical separation of openings in external walls (spandrels)

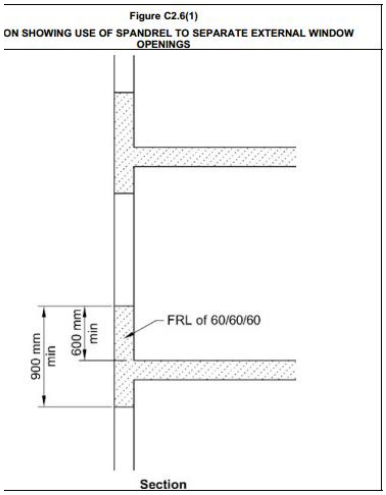
If in a building of Type A construction, any part of a window or other opening in an external wall is above another opening in the storey next below and its vertical projection falls no further than 450mm outside the lower opening (measured horizontally), the openings must be separated by –

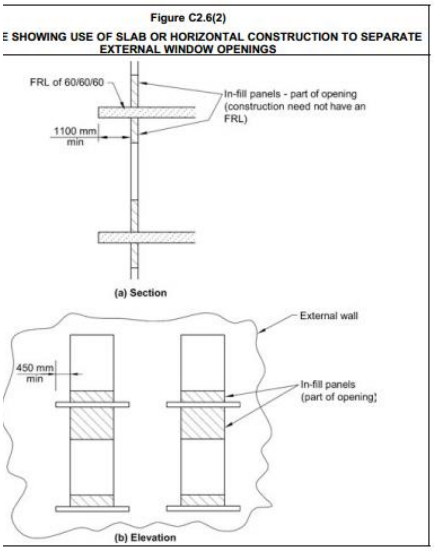
- A spandrel which –
    - Is not less than 900mm in height; and
    - Extends not less than 600mm above the upper surface of the intervening floor; and
    - Is of non-combustible material having an FRL of not less than 60/60/60

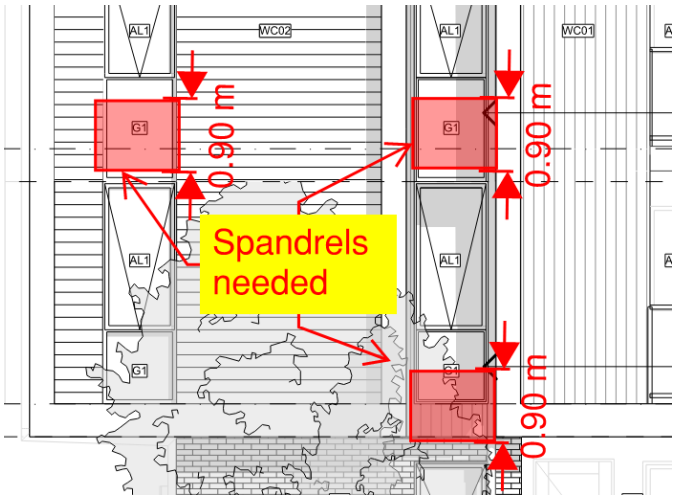
OR

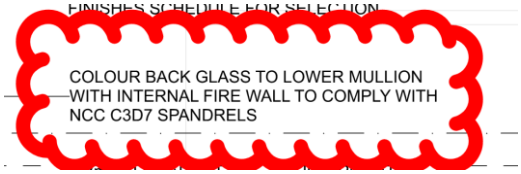
- A slab or other horizontal construction that –
    - Projects outwards from the external face of the wall not less than 1100mm; and
    - Extends along the wall not less than 450mm beyond the openings concerned; and
    - Is non-combustible and has a FRL of not less than 60/60/60

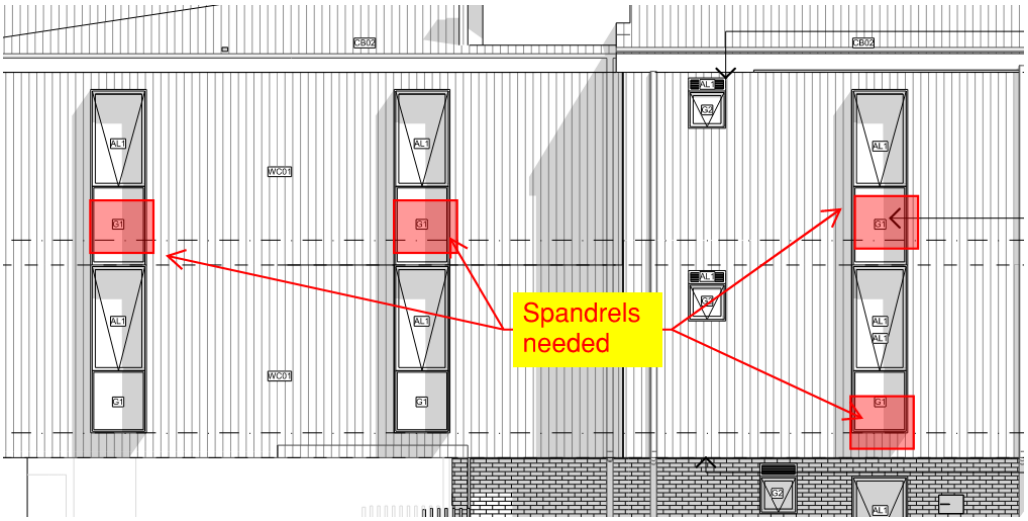
Note that with all critical dimensions eg 1100mm deep spandrels, a construction tolerance should be added eg 1150mm.

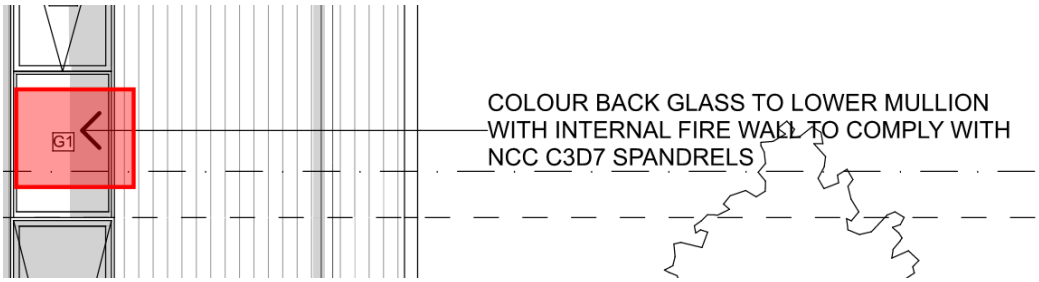












The detailed design stage design documents are required to show that any proposed spandrels including any support structure have an FRL of 60/60/60, that the openings protected by a horizontal spandrel are set back a minimum distance of 450mm and that they have a minimum depth of 1100mm.

Spandrels are required to all openings located above another or within 450m of it unless the building is provided with a sprinkler system that complies with BCA Specification 17 and AS2118.1 2017.

A full assessment of the compliance of the spandrel panels will be carried out upon receipt of the developed design drawings and prior to the issue of the Crown Works Certificate.

For the purposes of C3D7, window or other opening means that part of the external wall of a building that does not have an FRL of 60/60/60 or greater.

Spandrel protection is needed throughout regardless of window location due to the external wall not having an FRL of 60/60/60. Please confirm FRLs of external wall.

Separation of lift shaft

Any lift connecting more than 2 storeys (or more than 3 if the building is sprinkler protected) must be separated from the remainder of the building by enclosure of the shaft which has the relevant FRL's prescribed by Specification 5. The lift shafts are required to be provided with a 2-hour fire resistance level.

As the lifts connect 3 storeys the lift shaft are required to have a FRL of 120/120/120.

Separation of Equipment

Equipment must be separated from the remainder of the building if that equipment comprises of –

- Lift motors and lift control panels; or
- Emergency generators used to sustain emergency equipment operating in the emergency mode; or
- Central smoke control plant; or
- Boilers; or
- A battery system installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more

Any rooms containing any abovementioned equipment must be separated from the remainder of the builder via 120/120/120 fire rated construction and any doorway protected with a self-closing fire door having an FRL of not less than -/120/30.

Boiler means a vessel or an arrangement of vessels and interconnecting parts, wherein steam or other vapour is generated, or water or other liquid is heated at a pressure above that of the atmosphere, by the application of fire, the products of combustion, electrical power, or similar high temperature means, and—
(a) includes superheaters, reheaters, economisers, *boiler* piping, supports, mountings, valves, gauges, fittings, controls, the *boiler* settings and directly associated equipment; but
(b) excludes a fully flooded or pressurised system where water or other liquid is heated to a temperature lower than the normal atmospheric boiling temperature of the liquid.

Battery system means one or more chemical cells connected in series, parallel or a combination of the two for the purpose of electrical energy storage.

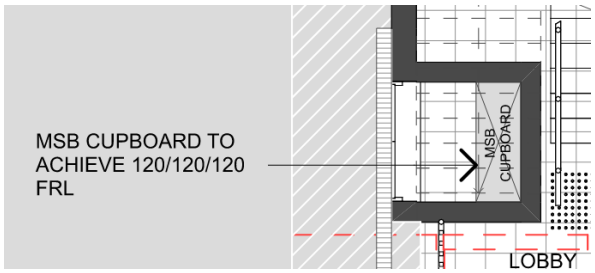
Electricity supply equipment

If the main switchboard sustains emergency equipment operating in the emergency mode it must be separated by construction having an FRL of not less than 120/120/120 and have any door protected with a self-closing fire door having an FRL of not less than -/120/30.

Where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment, must be constructed so that emergency equipment switchgear is separated form non-emergency equipment switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switchgear.

Note that emergency equipment includes but is not limited to the following –

- Fire hydrant booster pumps
- Pumps for automatic sprinkler systems, water spray, chemical fluid suppression systems or the like
- Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building
- Air handling system designed to exhaust and control the spread of fire and smoke
- Emergency lifts
- Control and indicating equipment
- Emergency warning and intercom systems



Lift motor room

Any lift motor room must be fire separated from the remainder of the building by construction with an FRL of not less than 120/120/120. The construction between the lift shaft and the lift motor room need only have an FRL of not less than 120/-/-.

Protection of openings in external walls

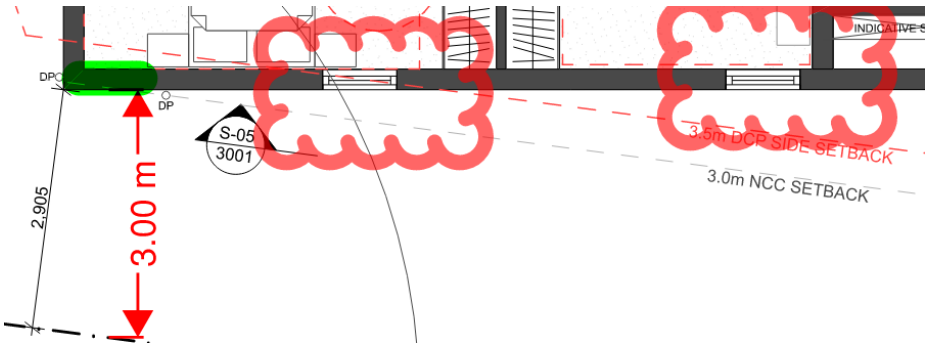
Openings in an external wall that is required to have an FRL must –

(a) If the distance between the opening and the fire source feature to which it is exposed is less than –

(i) 3m from a side or rear boundary of the allotment; or
(ii) 6m from the far boundary of a road, river or lake or the like adjoining the allotment, if not located in a storey at or near ground level; or
(iii) 6m from another building on the allotment that is not Class 10

Be protected in accordance with BCA Clause specification 12 and if wall -wetting sprinklers are used, they are located externally.

If there are openings on a wall that is within 3m from the boundary (southern wall) those openings need to be protected under BCA Clause C4D3(2)(a) in accordance with BCA Specification 12 (see clause below).



Acceptable methods of protection

Where protection is required, doorways, windows and other openings must be protected as follows –

(a) Doorways –

a. Internal or external wall-wetting sprinklers as appropriate used with windows that are self-closing or automatic closing; or
b. -/60/30 fire doors that are self-closing or automatic closing

(b) Windows

a. Internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or
b. -/60/- fire windows that are automatic closing or permanently fixed in the closed position; or
c. -/60/- automatic closing fire shutters

(c) Other openings –

a. Excluding voids – internal or external wall-wetting sprinkler, as appropriate; or

b. Construction having an FRL not less than -/60/-

(d) Fire doors, fire windows and fire shutters must comply with Specification 12.

Openings in fire-isolated exits

Doorways that open to fire-isolated stairways, and are not doorways opening to a road or open space, must be protected by -/60/30 fire doors that are self-closing, or automatic-closing.

A window in an external wall of a fire-isolated stairway must be protected in accordance with specification 12 if it is within 6m of, and exposed to, a window or other opening in a wall of the same building, other than in the same fire-isolated enclosure.

Openings in fire-isolated lift shafts

The doorways and indicator panels to the lifts are required to comply with the following requirements.

- Doorways — If a lift shaft is required to be fire-isolated, an entrance doorway to that shaft must be protected by -/60/– fire doors that

  (i) comply with AS 1735.11; and
  (ii) are set to remain closed except when discharging or receiving passengers, goods or vehicles.

- Lift indicator panels — A lift call panel, indicator panel or other panel in the wall of a fire-isolated lift shaft must be backed by construction having an FRL of not less than –/60/60 if it exceeds 35 000 mm2 in area.

Bounding construction: Class 2 buildings

The doorways to the class 2 sole occupancy units are required to comply with the following requirements.

(a) A doorway in a Class 2 building must be protected if it provides access from a sole-occupancy unit to –

(i) A public corridor, public lobby, or the like; or
(ii) A room not within a sole-occupancy unit; or
(iii) The landing of an internal non fire-isolated stairway that serves as a required exit; or
(iv) Another sole-occupancy unit

(b) A doorway in a Class 2 building must be protected if it provides access from a room not within a sole-occupancy unit to –

(i) A public corridor, public lobby or the like; or
(ii) The landing of an internal non-fire-isolated stairway that serves as a required exit.

(c) Protection for a doorway must be at least a self-closing -/60/30 fire door

Public corridor means an enclosed corridor, hallway or the like which—

(a) serves as a means of egress from 2 or more sole-occupancy units to a required exit from the storey concerned; or
(b) is required to be provided as a means of egress from any part of a storey to a required exit.

Even if the doors from the apartments do not open to a public corridor (if the walkways outside the apartments are not fully enclosed) the doors do open to a ‘public lobby (no BCA definition) or the like’ and the doors to the apartments are required to be protected with 1 hour self closing fire doors.

(d) Other openings in internal walls which are required to have an FRL with respect to integrity and insulation must not reduce the fire resisting performance of the wall

Openings in floors and ceilings for services

Where a service passes through a floor that is required to have an FRL with respect to integrity and insulation the service must be protected by a shaft or in accordance with BCA Clause C4D15 and Specification 13.

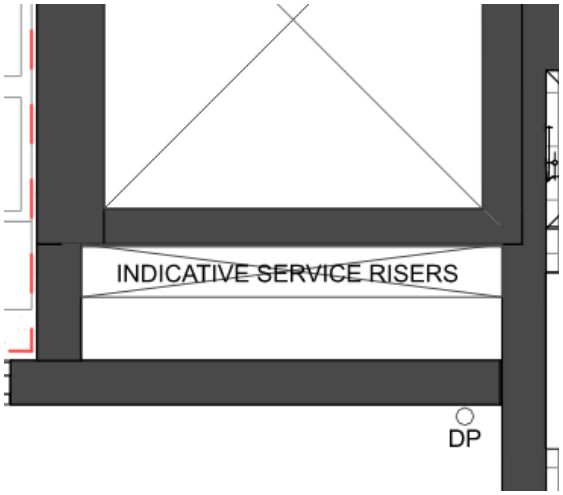
Opening in shafts

An opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft must be protected by a self-closing -/60/30 fire door or hopper, or an access panel having an FRL of not less than -/60/30 or if it is a garbage shaft a door or hopper that is non-combustible.

This applies to any proposed garbage chute and electrical and communication services cupboards on each floor if they are housed in a shaft.

Openings for service installations

All services penetrations within fire rated walls, floors and ceilings are to be treated in accordance with Clause C4D15 of the Building Code of Australia 2022.



4.0 Egress

Principles

The buildings egress is required to be designed to ensure compliance with the following minimum requirements:

- The maximum distance between alternative exits serving the apartment levels is 45m.
- The entrance doorway of any sole-occupancy unit must be not more than 6m from an exit or from a point from which travel in different directions to 2 exits is available or 20m from a single exit serving the storey at the level of egress to a road or open space.
- No point in the building, which is not an apartment, must be more than 20m from an exit or from a point at which travel in different directions to two exits is available, in which case the maximum distance to one of those exits must not exceed 40m.
- The maximum distance between alternative exits serving the basement carpark is 60m.
- Exits that are required as alternative means of egress must be distributed as uniformly as practicable within or around the storey served.
- The discharge point of alternative exits must be located as far apart as practical.
- Exits that are required as alternative means of egress must be not less than 9m apart.

- Exits that are required as alternative means of egress must be located so that alternative paths of travel do not converge such that they become less than 6m apart.
- The unobstructed height throughout an exit (eg fire stair) must be not less than 2m except for doorways which may be reduced to not less than 1980mm.
- The unobstructed widths of each path of travel to an exit must be not less than 1m except for doorways which may be reduced to not less than 750mm. (Please see the requirements for disabled access below.)
- Each stair must provide independent egress from each storey served and discharge directly to a road or open space or into a covered area that adjoins a road or open space.
- The doors to the electrical, data and communication services cupboards must have a non-combustible lining and be smoke separated from the lobby. The cupboards must be smoke separated from the corridor so that there is no connection between the cupboard and any false ceiling over the lobby.
- The construction and discharge of exits, landings, thresholds, balustrades and handrails are required to comply the requirements of the BCA.
- Exit doors (not apartment entry doors) are required to swing in the direction of travel and should be free passage from the side that a person is seeking egress.
- All exit doorways must have level thresholds on either side of the doorway or be provided with a threshold ramp.
- Handrails in the stairs are required to be designed and constructed to comply with clause 12 of AS 1428.1 2009.

Number of exits

Only 1 exit has been provided to each storey therefore must satisfy the requirements of D2D5.

The exit travel distance from entrance doorway of any sole-occupancy unit must be not more than 6m to an exit.

The exit travel distance must be within 20 m from a single exit serving the storey at the level of egress to a road or open space.

Compliance has been achieved.

When fire-isolated stairways and ramps are required

In a Class 2 building every stairway serving as a required exit must be fire isolated unless it connects, passes through or passes by not more than 3 consecutive storeys and one extra storey may be added if it is only for the accommodation of motor vehicles or for other ancillary purposes.

As the stair doesn’t pass more than 3 storeys it is not required to be fire isolated.

Travel distances

The entrance doorway of any sole-occupancy unit must be not more than 6m from an exit or from a point from which travel in different directions to 2 exits is available or 20m from a single exit serving the storey at the level of egress to a road or open space.

No point in the building, which is not an apartment, must be more than 20m from an exit or from a point at which travel in different directions to two exits is available, in which case the maximum distance to one of those exits must not exceed 40m.

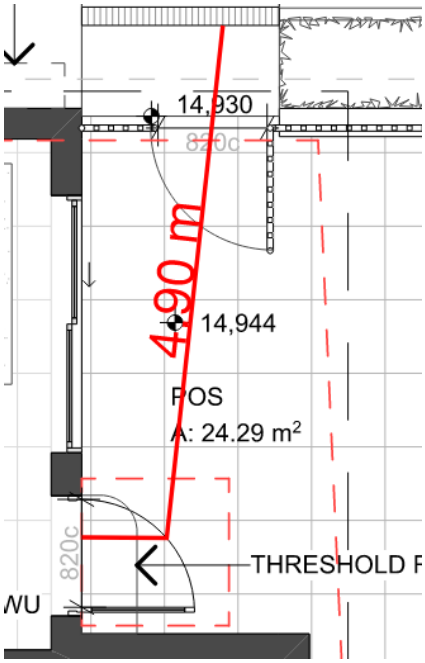
A required automatic fire sprinkler system installed in a Class 2 or 3 building with an effective height of not more than 25 m and a rise in storeys of 4 or more must comply with—

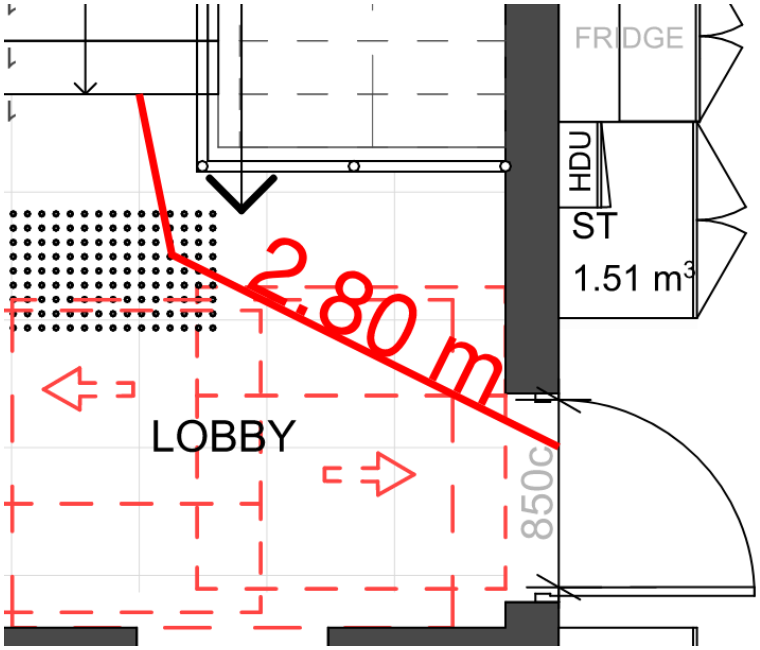
a) AS 2118.1; or
b) AS 2118.4, as applicable; or
c) FPAA101D, except for residential care buildings; or
d) FPAA101H, except for residential care buildings.

The following concessions are permitted for Class 2 and 3 buildings provided with a required automatic fire sprinkler system in accordance with S18C3(1)(a), (1)(b) or (1)(c):

a) Except in a residential care building, the maximum distance of travel, as required by D2D5(1)(a)(i), may be increased from 6 m to 12 m.
b) The maximum distance of travel from a single exit serving the storey at the level of egress to a road or open space, as required by D2D5(1)(a)(ii), may be increased from 20 m to 30 m.
c) The maximum distance between alternative exits, as required by D2D6(c)(i), may be increased from 45 m to 60m.

Travel distances comply.





Dimensions of exits

In a required exit or path of travel to an exit –

- The unobstructed height throughout must be not less than 2m, except the unobstructed height of any doorway may be reduced to not less than 1980mm; and
- The unobstructed width of each exit or path of travel to an exit, except for doorways must not be less than 1m.

Travel by non-fire-isolated stairways

A non-fire-isolated stairway or non-fire-isolated ramp serving as a required exit must provide a continuous means of travel by its own flights and landings from every storey served to the level at which egress to a road or open space is provided.

In a Class 2 building, the distance between the doorway of a room or sole-occupancy unit and the point of egress to a road or open space by way of a stairway or ramp that is not fire-isolated and is required to serve that room or sole-occupancy unit must not exceed 60 m.

In a Class 2 building, a required non-fire-isolated stairway or non-fire-isolated ramp must discharge at a point not more than—

(a) 15 m from a doorway providing egress to a road or open space or from a fire-isolated passageway leading to a road or open space; or
(b) 30 m from one of 2 such doorways or passageways if travel to each of them from the non-fire-isolated stairway or non-fire-isolated ramp is in opposite or approximately opposite directions.

Travel distances comply.

Discharge from exits

The BCA states that an exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit, or access to it.

Where the required exit leads to open space, the path of travel to the road must have an unobstructed width throughout of not less than 1m.

Where the exits discharges to open space which is at a different level than the public road to which it is connected, the path of travel to the road must be by a ramp or other incline having a gradient not steeper then 1:8 at any part, or not steeper than 1:14 if required to be accessible.

Non-fire-isolated stairways and ramps

In a building having a rise in storeys of more than 2, required stairs (including landings and any supporting building elements) which are not required to be within a fire-resisting shaft, must be constructed according to fire-isolated stairways requirements above, or only of reinforced or prestressed concrete, steel in no part less than 6 mm thick or timber that—

(i) has a finished thickness of not less than 44 mm; and
(ii) has an average density of not less than 800 kg/m3 at a moisture content of 12%; and
(iii) has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.

Installation in paths of travel

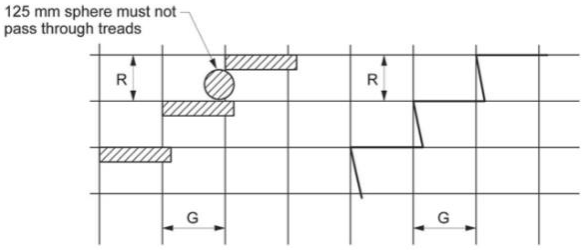
Electrical, comms or mechanical distribution boards installed along a path of travel to an exit are required to be enclosed by non-combustible construction or a fire protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure.

Stairs

The proposed stairs are required to be provided with risers and goings that have a constant dimension throughout the flight and that comply with the formula 2R+G = 550-700. Risers shall not permit any openings greater than 124mm to pass through the treads.

Compliance readily achievable and to be documented in the next phase of design. Architect to note and provide details of the stairs for further assessment.

Stairway location	Riser (R)	Going (G) Note 3	Quantity (2R+G)
Public	Max: 190 mm Min: 115 mm	Max: 355 mm Min: 250 mm	Max: 700 mm Min: 550 mm
Private Note 1	Max: 190 mm Min: 115 mm	Max: 355 mm Min: 240 mm	Max: 700 mm Min: 550 mm



The treads and landings in the internal stairs (if dry) must have a surface with a slip-resistance classification not less than P3 or R10 when tested in accordance with AS 4586 2013 or a nosing strip or landing edge strip with a slip-resistance classification not less than P3 when tested in accordance with AS 4586 2013.

The treads and landings in the external stairs must have a surface with a slip-resistance classification not less than P4 or R11 when tested in accordance with AS 4586 2013 or a nosing strip or landing edge strip with a slip-resistance classification not less than P4 when tested in accordance with AS 4586 2013.

Landings

Landings are required to have a maximum gradient of 1:50 and must be not less than 750mm long, and where this involves a change in direction, the length is measured 500mm from the inside edge of the landing.

Landings must have a surface with a slip-resistance classification not less than that listed in D3D15 when tested in accordance with AS 4586 or a strip at the edge of the landing with a strip at the edge of the landing with a slip resistance classification not less than that listed in D3D15 when tested in accordance with AS 4586, where the edge leads to a flight below.

Door thresholds

The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless it is provided with a threshold ramp or step ramp in accordance with AS1428.1 2009.

The doorways from the building to the outside must not have a step in the door threshold. Any level change must be made up by a ramp complying with AS1428.1 2009.

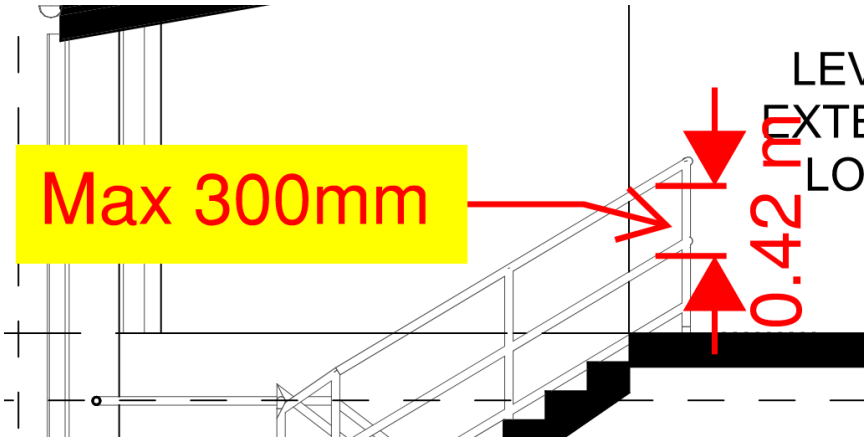
Barriers to prevent falls

A continuous barrier must be provided along the side of a stairway, ramp, floor, corridor, hallway, balcony, deck, veranda or the like where the trafficable surface is 1m or more above the surface beneath.

Barrier heights must be a minimum of 865mm high along all stair flights and shall not have any openings larger than 124mm throughout the barrier.

Barrier heights must be a minimum 1m high along all walkways and balconies on Levels 1 and 2 and shall not have any openings larger than 124mm throughout the barrier.

All balustrades to walkways and balconies that are located 4m or more above the ground below must have no horizontal or near horizontal elements between 150 mm and 760 mm above the floor.



Handrails

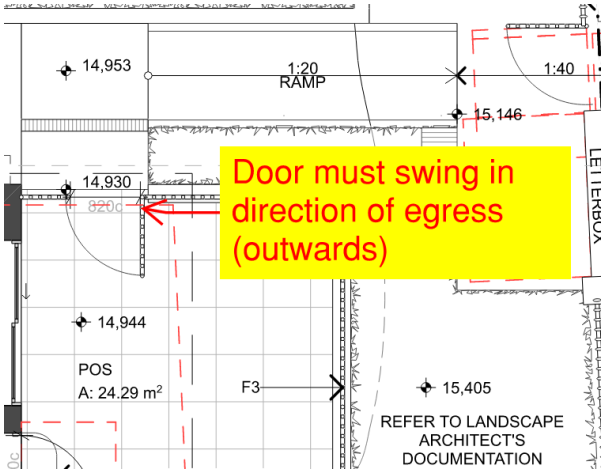
All stairs and ramps are required to be provided with handrails with a minimum height of 865mm.

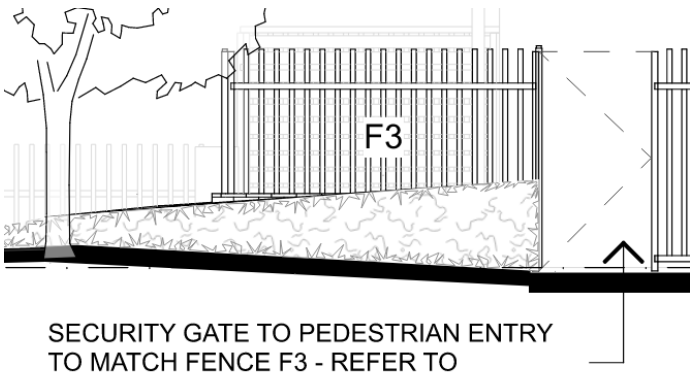
If the non-fire isolated stairs are used as communication stairs by the residents they must be designed and constructed to comply with Clause 12 of AS4128.1 2009.

This requires handrails to be provided to both sides of the stairs. The handrails must be fixed at a height between 865 – 1000mm measured above the nosings of stair treads and the floor surface of ramp, landing, or the like and be continuous between stair flight landings and have no obstruction on or above them that will tend to break a hand-hold.

Exit door swing

Exit doors are required to swing in the direction of travel.





Operation of Latch

The door hardware to all proposed doors (except the doors to or within the apartments) must be readily openable without a key from the side that faces a person seeking egress by:

- a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch and have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45mm or

- a single hand pushing action on a single device which is located between 900 mm and 1.2 m from the floor.

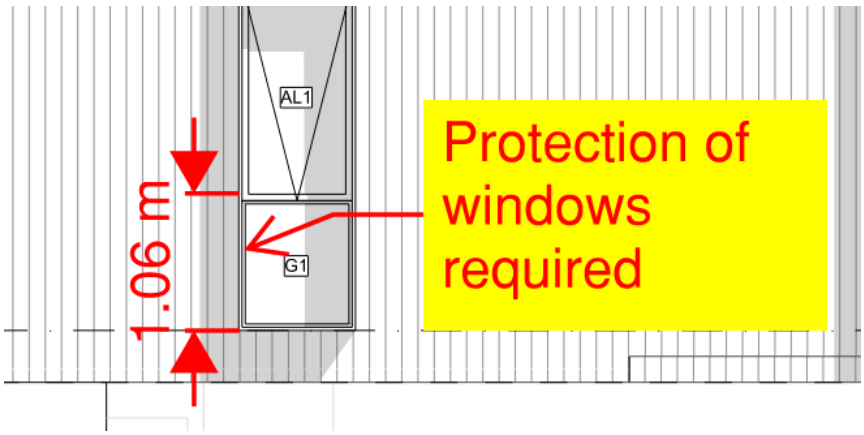
Protection of openable windows

A window opening must be provided with protection, if the floor below the window is 2 m or more above the surface beneath a bedroom in a Class 2 building.

Where the lowest level of the window opening is less than 1.7 m above the floor, the window opening must comply with the following:

- The openable portion of the window must be protected with—
  - a device capable of restricting the window opening; or
  - a screen with secure fittings.
- the device or screen must—
  - not permit a 125 mm sphere to pass through the window opening or screen; and
  - resist an outward horizontal action of 250 N against the—
    - window restrained by a device; or
    - screen protecting the opening; and
  - have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.

A barrier with a height not less than 865 mm above the floor is required to have a child resistant release mechanism in addition to window protection. The window barrier must not permit openings greater than 124mm and not have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor to facilitate climbing.



5.0 Services and Equipment

Please provide services drawings to determine the requirements specific to this project.

The following is a status of the services and equipment required to be provided to the building.

Fire Hydrants

Fire hydrant coverage in accordance with BCA Clause E1D2 and AS2419.1 2021 must be provided to the building as the floor area is greater than 500m2.

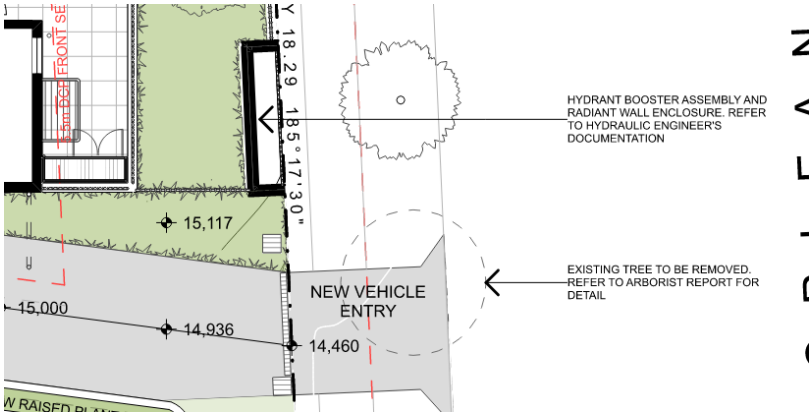
All points of the floor to be within 40m of an internal hydrant.

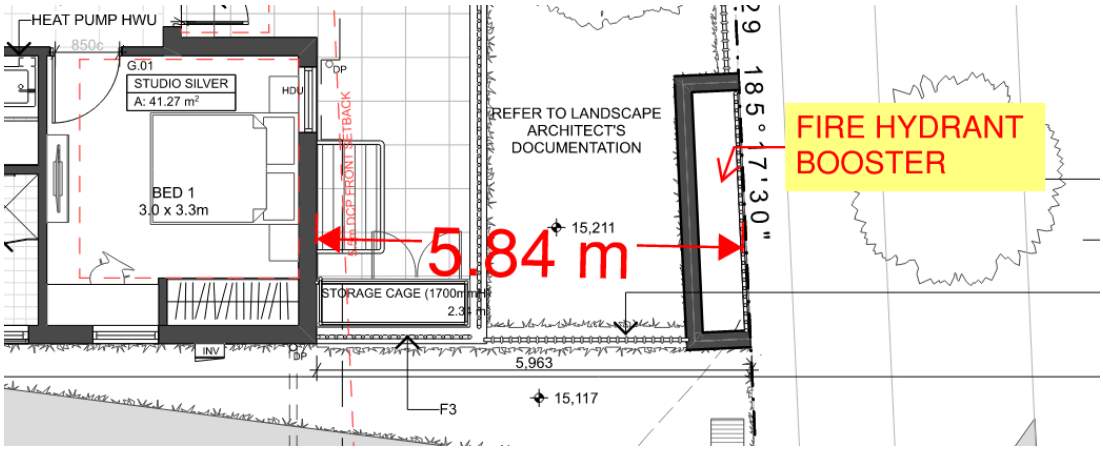
Internal fire hydrants shall be located within 4m from the stairs.

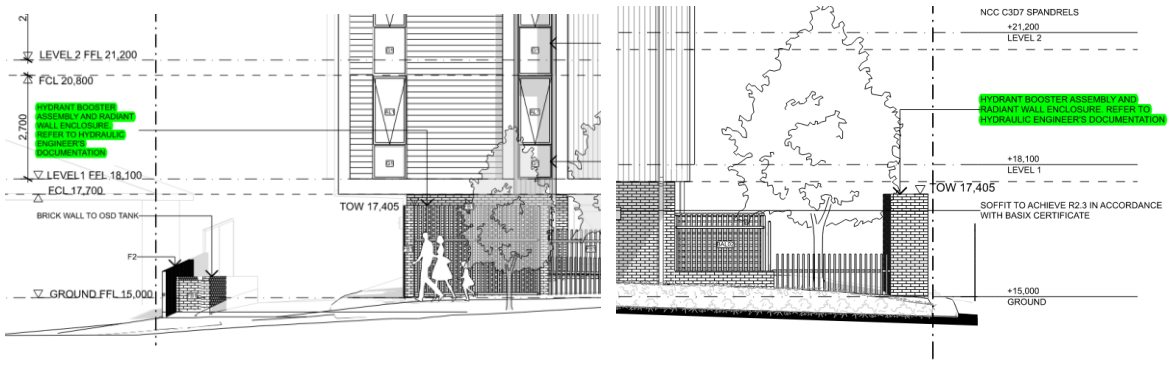
The fire hydrant booster if remote from the building is required to be at the boundary of the site and be within sight of the main entrance of the building, adjacent to the principal vehicular access to the site and may be within 10 m from the external wall of any building served if the booster assembly:

(aa) achieves an FRL of not less than 90/90/90; and
(bb) extends not less than 1 m each side of the outermost fire hydrant booster risers within the assembly and is not less than 3 m wide; and
(cc) extends to a height of not less than 2 m above finished ground level;

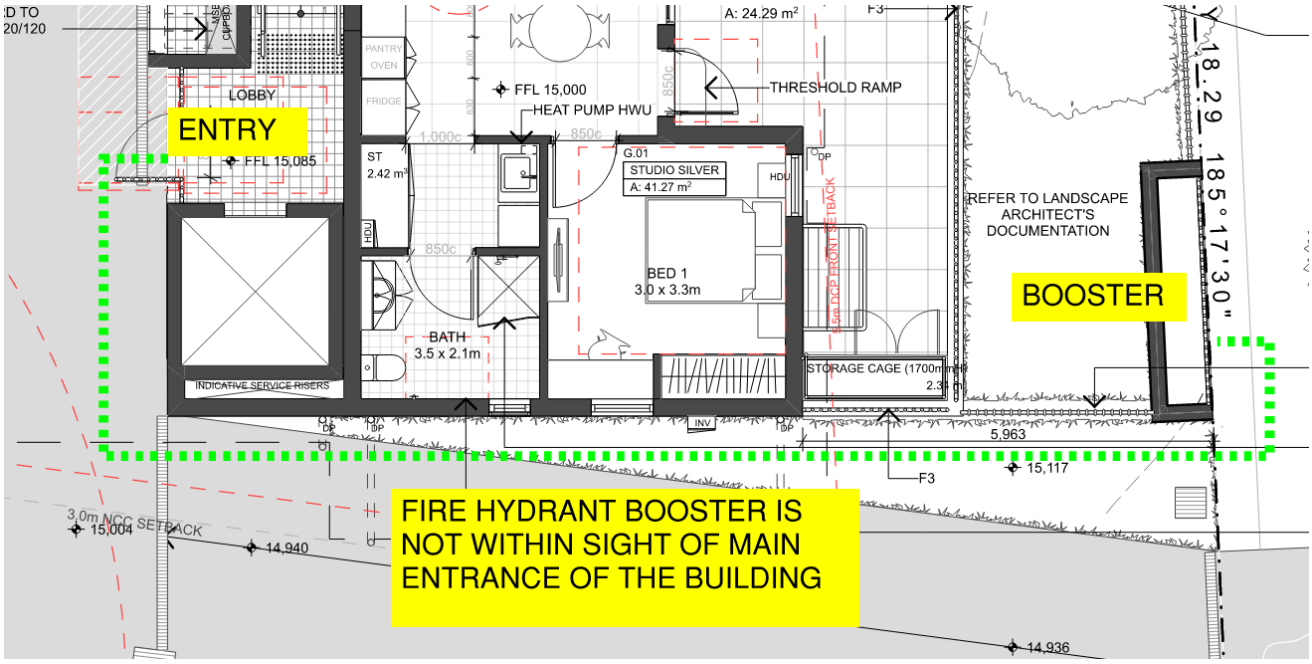
Please provide details to confirm compliance has been achieved.







The fire hydrant booster location is not within sight of the main entrance of the building. As such will need to be addressed under a fire engineered performance solution.



Fire Hose-Reels

Fire hose-reels coverage in accordance with the BCA Clause E1D3 and AS 2441-2005 is not required as the floor area as the no fire compartment size is greater than 500m2.

Portable Fire Extinguishers

Fire extinguishers in accordance with BCA Clause E1D14 and AS 2444 2001 must be provided to the building.

Portable fire extinguishers that are required to be provided in a Class 2 building must be—

(i) an ABE type fire extinguisher; and
(ii) a minimum size of 2.5 kg; and
(iii) distributed outside a sole-occupancy unit—
(A) to serve only the storey at which they are located; and
(B) so that the travel distance from the entrance doorway of any sole-occupancy unit to the nearest fire extinguisher is not more than 10m.

Smoke Hazard Management – Smoke Detection and Alarm System

The smoke hazard management requirements are stated below.

General requirements

- An air-handling system which does not form part of a smoke hazard management system in accordance with Table E2.2a and which recycles air from one fire compartment to another fire compartment or operates in a manner that may unduly contribute to the spread of smoke from one fire compartment to another fire compartment must –
    - Be designed and installed to operate as a smoke control system in accordance with AS1668.1; or
        - Incorporate smoke dampers where the air-handling ducts penetrate any elements separating the fire compartments served; and
        - Be arranged such that the air-handling system is shut down and the smoke dampers are activated to close automatically by smoke detectors complying with Clause 7.5 of AS1670.1; and
          For the purposes of this provision, each sole-occupancy unit in a Class 2 is treated as a separate fire compartment
    - Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1 serving more than one fire compartment (other than a carpark ventilation system) and not forming part of a smoke hazard management system must comply with that Section of the Standard.

Class 2 buildings

- Must be provided with an automatic smoke detection and alarm system complying with BCA Specification 20, i.e. a smoke alarm system complying with AS 3786 – 2014 or a smoke detection system complying with AS 1670 – 2018.

Class 7a parts

A Class 7a building, including a basement, provided with a mechanical ventilation system in accordance with AS 1668.2, must comply with clause 5.5 of AS 1668.1.

The building must be provided with an automatic smoke detection and alarm system complying with one of the following:

- A smoke detection system complying with BCA Specification 20 and AS1670.1 2018 through the whole building with alarms installed in public corridors and other internal public spaces installed in accordance with the requirements for smoke detectors in AS1670; or
- A combination of a smoke alarm system complying with BCA Specification 20 and AS3786 2014 within apartments smoke detection system complying with AS1670.1 2018 in areas not within the apartments.

A building occupant warning system is required to be installed as per the requirements of BCA Specification 20.

Fire Services Consultant to confirm the proposed smoke detection system for the building.

Passenger lift

The lifts are to be accessible and comply with the requirements of AS1735.12 1999 and BCA Clause E3.6.

Handrails complying with AS1735.12 1999 must be provided to both lifts.

All lifts that travel not more than 12m must have a lift floor dimensions of not less than 1100 mm wide x 1400 mm deep.

All lifts that travel more than 12m must have a lift floor dimensions of not less than 1400 mm wide x 1600 mm deep.

All lift doors must have a clear opening width of not less than 900mm.

Any passenger lift must not rely on a constant pressure device for its operation if the lift car is fully enclosed.

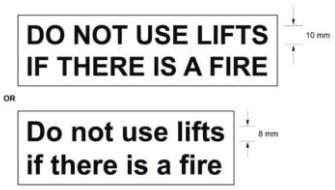
All lifts must have a passenger protection system, lighting and lift car and landing control buttons that comply with AS1735.12 1999.

All lifts serving more than 2 levels must be provided with:

- automatic audible information within the lift car to identify the level each time the car stops; and
- audible and visual indication at each lift landing to indicate the arrival of the lift car; and
- audible information and audible indication *required* by (a) and (b) is to be provided in a range of between 20–80 dB(A) at a maximum frequency of 1 500 Hz

Emergency hands-free communication, including a button that alerts a call centre of a problem and a light to signal that the call has been received must be provided to all lifts.

Warning signs must be displayed where it can be readily seen near every passenger lift complying with Figure E3.3 as shown below.



Provide further lift drawings for assessment prior to the issue of the relevant Building Approval.

Emergency lighting

Emergency lighting in accordance with BCA Clause E4D2 and AS 2293.1 2005 is to be provided –

- In every fire isolated stairway
- In every storey of a Class 7 building where the storey has a floor area more than 300m^2 –
  - In every passageway, corridor, hallway or the like that forms the path of travel to an exit
  - In any room having a floor area more than 100m^2 that does not open to a corridor or space that has emergency lighting or to a road or open space
  - In any room having a floor are more than 300m^2

- In every passageway, corridor, hallway, or the like, having a length of more than 6 m from the entrance doorway of any sole-occupancy unit in a Class 2 building to the nearest doorway opening directly to:

  - a fire-isolated stairway, fire-isolated passageway or fire-isolated ramp; or
  - an external stairway serving instead of a fire-isolated stairway; or

- an external balcony leading to a fire-isolated stairway, fire-isolated passageway or fire-isolated ramp; or
- a road or open space; and

- In every required non fire isolated stairway

Exit signs

An exit sign must be clearly visible to persons approaching the exit, and must be installed on, above or adjacent to each—

(a) door providing direct egress from a storey to—

(i) an enclosed stairway, passageway or ramp serving as a required exit; and

(b) door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space; and
(c) horizontal exit; and
(d) door serving as, or forming part of, a required exit in a storey required to be provided with emergency lighting in accordance with E4D2.

Where an exit sign is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.

Note that exits signs do not apply to a Class 2 building in which every door referred to is clearly and legibly labelled on the side remote from the exit or balcony with the word “EXIT” in capital letters 25 mm high in a colour contrasting with

that of the background or by some other suitable method. Additionally, exit signs are not required at the entrance door of a sole-occupancy unit in a Class 2 building.

6.0 Health and Amenity

External wall cladding must comply with one or a combination of the following:

(a)Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700.
(b)Autoclaved aerated concrete: AS 5146.3.
(c)Metal wall cladding: AS 1562.1.

Where an external lightweight wall cladding is proposed it is required to have a CodeMark Certificate of Conformity confirming compliance to BCA F3P1.

Stormwater drainage

All stormwater drainage is required to comply with AS/NZS 3500.3 2021

External above ground membranes

Waterproofing membranes for external above ground use must comply with AS 4654.1 and AS 4654.2.

Roof coverings

Where a concrete roof is proposed, it is required to have an external waterproofing membrane complying with BCA Clause F1D5.

Where a metal roof is proposed, it is required to comply with AS 1562.1.

Sarking

Sarking-type material used for weatherproofing of roofs and walls must comply with AS/NZS 4200.1 and AS 4200.2.

Waterproofing of wet areas

Building elements in bathroom or shower room, a sink compartment, a laundry or sanitary compartment must—
(i) be *water resistant* or *waterproof* in accordance with BCA S26C1; and
(ii) comply with AS 3740 2021.

Damp-proofing

Moisture from the ground must be prevented from reaching—
(i) the lowest floor timbers and the walls above the lowest floor joists; and
(ii) the walls above the damp-proof course; and
(iii) the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders.

Where a damp-proof course is provided, it must consist of—
(i) a material that complies with AS/NZS 2904 1995; or
(ii) impervious sheet material in accordance with AS 3660.1 2000 or 2014.

Damp-proofing of floors on the ground

If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870 2011, except damp-proofing need not be provided if—

(a) weatherproofing is not *required*; or
(b) the floor is the base of a stair, lift or similar *shaft* which is adequately drained by gravitation or mechanical means.

Exposed Joints

Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must—
(a) be protected in accordance with Section 2.9 of AS 4654.2; and
(b) not be located beneath or run through a planter box, water feature or similar part of the building.

Floor wastes

In a Class 2 building a bathroom or laundry located at any level above a sole-occupancy unit or public space must have a floor waste and the floor graded to the floor waste to permit drainage of water.

BCA 2022 requires a minimum grade of 1:80 and a max grade of 1:50. A tolerance to the proposed 1:80 is recommended.

Subfloor Ventilation

Subfloor spaces must be provided with openings in external walls and internal subfloor walls in accordance with BCA Table F1D8 for the climatic zones given in BCA Figure F1D8 and have clearance between the ground surface and the underside of the lowest horizontal member in the subfloor in accordance with BCA Table F1D8.

Glazed assemblies

The following glazed assemblies in an external wall, must comply with AS 2047 2014 requirements for resistance to water penetration:

- Windows.
- Sliding and swinging glazed doors with a frame, including french and bi-fold doors with a frame.
- Adjustable louvres.

- Window walls with one piece framing

Sanitary and other facilities in residential buildings

Each apartment must be provided with the following facilities:

- a kitchen sink and facilities for the preparation and cooking of food,
- a bath or shower,
- a closet pan and washbasin,
- clothes washing facilities, comprising a washtub and space for a washing machine,
- clothes drying facilities comprising clothesline or hoist with not less than 7.5 m of line or space for one heat-operated drying cabinet or appliance in the same room as the clothes washing facilities.
- or a separate laundry for each 4 apartments can also be provided in lieu of individual facilities. Note: a kitchen sink or washbasin cannot be considered as a laundry washtub.

Room Sizes

The BCA states that the height of rooms and other spaces must be not less than in a Class 2 building:

(i) a kitchen, laundry, or the like — 2.1 m; and
(ii) a corridor, passageway or the like — 2.1 m; and
(iii) a habitable room excluding a kitchen — 2.4 m

Habitable room means a room used for normal domestic activities, and—

(a) includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, **study**, playroom, family room, home theatre and sunroom; but
(b) excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothes-drying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods.

All areas within the other parts of the building (i.e. the basement carpark) are required to have a ceiling height of at least 2.4m and 2.1m in car parking areas, corridors, passageways or the like.

The architect is required to determine if the SEPP 65 requirement for room heights within all apartments to be a minimum of 2.7m is applicable.

The architect is required to include any ceiling height requirements of the applicable planning legislation.

Any mechanical or services bulkheads impeding the ceiling heights are to be shown in the developed design drawings.

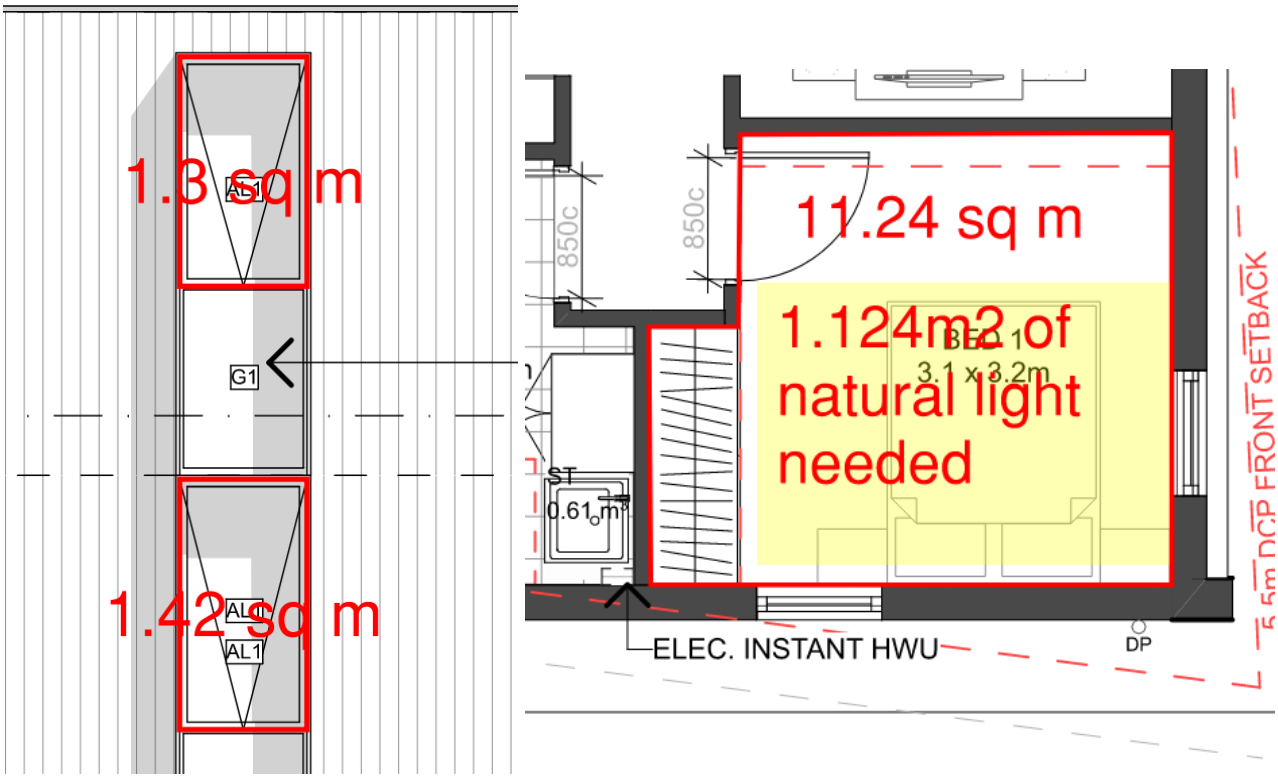
Natural Light

All habitable rooms in the apartment are required to be provided with natural light, these rooms include the bedrooms, the living room, study, dining room and kitchen.

The natural light must come from window and door openings amounting to at least 10% of the floor area of the room.

The windows providing the natural lighting must be open to the sky or face a court or other space open to the sky or an open verandah, carport or the like.

Adequate natural light has been provided to the bedrooms.



Architect to provide window details providing details of the openable area for natural for review prior to the issue of the Crown Works Certificate. Please note that if design changes are required to meet BCA compliance after the DA has been approved then a s4.55 modification to the DA approved drawings may be required.

Artificial light

All areas not provided with natural light must be provided with artificial lighting complying with AS/NZS 1680.0 2009.

Ventilation

All habitable rooms (eg bedrooms, living room, dining rooms, studies etc) and other areas of the building occupied by a person for any purpose must be provided with natural ventilation complying with BCA Clause F6D7 and F6D8 or mechanical ventilation complying with AS 1668.2 2012.

Note that if ventilation is provided by operable windows and their openings are restricted to comply with the balustrade provisions the amount of air that they provided should be calculated based on the reduced size of the openings.

Carpark Ventilation

The carpark must have a system of mechanical ventilation complying with AS 1668.2 2012 or provided with natural ventilation.

Sound transmission

All walls, floors and services must comply with Part F7 and Specification 28 of the BCA.

Provide the acoustic report for review.

Occupiable outdoor area

These provisions do not apply to an occupiable outdoor area with an area less than 10m2 ie a balcony less than 10m2.

The BCA states that a lining, material or assembly in an occupiable outdoor area must comply with the BCA fire hazard indices requirements of BCA Clause specification 5 as for an internal element.

The following fire hazard properties of a lining, material or assembly in an occupiable outdoor area are not required to comply with specification 5:

(j) Average specific extinction area.
(ii) Smoke-Developed Index.
(iii) Smoke development rate.

(iv) Smoke growth rate index (SMOGRARC).

Occupiable outdoor area means a space on a roof, balcony or similar part of a building—
(a) that is open to the sky; and
(b) to which access is provided, other than access only for maintenance; and
(c) that is not open space or directly connected with open space

Provide the fire hazard indices for any linings in the proposed balconies.

7.0 Condensation Management

External wall construction

(1) Where a pliable building membrane is installed in an external wall, it must—
(a)comply with AS 4200.1; and
(b)be installed in accordance with AS 4200.2; and
(c)be located on the exterior side of the primary insulation layer of wall assemblies that form the external envelope of a building.
(2) Where a pliable building membrane, sarking-type material or insulation layer is installed on the exterior side of the primary insulation layer of an external wall it must have a vapour permeance of not less than—
(a) in climate zones 4 and 5, 0.143 µg/N.s; and
(b) in climate zones 6, 7 and 8, 1.14 µg/N.s.
(3) Except for single skin masonry and single skin concrete, where a pliable building membrane is not installed in an external wall, the primary water control layer must be separated from water sensitive materials by a drained cavity.

Exhaust Systems

(1) An exhaust system installed in a kitchen, bathroom, sanitary compartment or laundry must have a minimum flow rate of—
(a)25 L/s for a bathroom or sanitary compartment; and
(b) 40 L/s for a kitchen or laundry.
(2) Exhaust from a kitchen, kitchen range hood, bathroom, sanitary compartment or laundry must discharge directly or via a shaft or duct to outdoor air.
(3) Where space for a clothes drying appliance is provided in accordance with F4D2(1)(b), space must also be provided for ducting from the clothes drying appliance to outdoor air.
(4) (3) does not apply if a condensing-type clothes drying appliance is installed.
(5) An exhaust system that is not run continuously and is serving a bathroom or sanitary compartment that is not ventilated in accordance with F6D7 must—
(a) be interlocked with the room's light switch; and
(b) include a run-on timer so that the exhaust system continues to operate for 10 minutes after the light switch is turned off.

(6) Except for rooms that are ventilated in accordance with F6D7, a room with space for ducting a clothes drying appliance to outdoor air in accordance with (3) must be provided with make-up air in accordance with AS 1668.2

A range hood installed in a kitchen must comply with F8D4(2) (directly or via a shaft or duct to outdoor air).

Ventilation of roof spaces

(1) In climate zones 6, 7 and 8, a roof must have a roof space that is located—

(i) immediately above the primary insulation layer; or
(ii) immediately above sarking with a vapour permeance of not less than 1.14 µg/N.s, which is immediately above the primary insulation layer; or
(iv) immediately above ceiling insulation which meets the requirements of J3D7(3) and J3D7(4); and
(b) has a height of not less than 20 mm; and

is either ventilated to outdoor air through evenly distributed openings in accordance with Table F8D5; or located immediately underneath roof tiles of an unsarked tiled roof.

(2) The requirements of (1) do not apply to a—
(a)concrete roof; or
(b) roof that is made of structural insulated panels; or
(c) roof that is subject to Bushfire Attack Level FZ requirements in accordance with AS 3959

8.0 Liveable Housing Design

Each sole-occupancy unit in a Class 2 building must comply with the ABCB Standard for Liveable Housing Design, except for Part 1.

Part G7 of the BCA – Liveable Housing Design is to be carried out by an access consultant, provide their report for review.

Note that Part 1 of the ABCB Standard for Livable Housing Design requires a step-free access path from a parking space or property boundary, to the dwelling entry door. For Class 2 buildings, this requirement is already addressed by Part D4 and the Disability (Access to Premises—Buildings) Standards 2010. Therefore, it is not necessary to apply Part 1 of the ABCB Standard for Livable Housing Design to a Class 2 building.

9.0 Energy Efficiency

All works must comply with the BCA Section J and BASIX requirements. Please provide a Section J Report for review

Please note that BCA 2022 states the following in relation to facilities for electric vehicle charging equipment.

J9D4 Facilities for electric vehicle charging equipment
(1) Subject to (2), a carpark associated with a Class 2, 3, 5, 6, 7b, 8 or 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging—
(a) in accordance with Table J9D4 in each storey of the carpark; and

(b) labelled to indicate use for electric vehicle charging equipment.
(2) Electrical distribution boards dedicated to serving electric vehicle charging in a carpark must—
(a) be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and
(b) when associated with a Class 2 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00 pm to 7:00 am daily; and
(c) when associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 9:00 am to 5:00 pm daily; and
(d) when associated with a Class 3 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 48 kWh from 11:00 pm to 7:00 am daily; and

(e) be sized to support the future installation of a 7 kW (32 A) type 2 electric vehicle charger in—
(i) 100% of the car parking spaces associated with a Class 2 building; or
(ii) 10% of car parking spaces associated with a Class 5 or 6 building; or
(iii) 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and
(f) contain space of at least 36 mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electric vehicle charging equipment; and
(g) be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment.

Distribution boards for EV charging won't be needed as there is less than 10 car spaces. Table J9D4 below shows when capacity for EV charging is required.

Table J9D4: Electric vehicle distribution board requirement for each storey of a carpark

Carpark spaces per *storey* for electric vehicles	Electrical distribution boards for electric vehicle charging per *storey*
0 - 9	0
10 - 24	1
25 - 48	2
49 - 72	3
73 - 96	4
97 - 120	5
121 - 144	6
145 - 168	7

Table Notes

Where there are more than 168 *carpark* spaces per *storey*, one additional distribution board must be provided for each additional 24 spaces or part thereof.

10.0 Provision for cleaning windows

A building must provide for a safe manner of cleaning any windows located 3 or more storeys above ground level.

Note this is satisfied where –
(i) the windows can be cleaned wholly from within the building; or
(ii) provision is made for the cleaning of the windows by a method complying with the Work Health and Safety Act 2011 and regulations made under the Act.

11.0 Performance solutions / fire engineering

Any part of the design that does not comply with the deemed to satisfy requirements of the BCA are required to be addressed in a performance solution report prior to the issue of the Crown Works Certificate.

12.0 Conclusion

The building's design details provided to date has been assessed in respect to the deemed to satisfy provisions of the deemed-to-satisfy provisions of Section C, D, E and F of the Building Code of Australia 2022 excluding Section B (Structure by Structural Engineer), Part D4 and Part G7 Liveable Housing Design (Disabled Access by Access Consultant), Part F7 (Sound Transmission & Insulation by Acoustic Engineer), Part G5 (Bushfire by Bushfire Consultant if applicable) and Section J (Energy Efficiency/BASIX by ESD Consultant).

The design is at a point where the design can be further developed with regards to BCA compliance however further reviews are required prior to the issue of the Crown Works Certificate.

APPENDIX A – DRAWINGS REVIEWED

Architectural drawings prepared by Integrated Design Group

	Drawing Name	Drawing Number	Revision	Date
1.	Cover	0001		06/05/2024
2.	BASIX Commitment	0002	B	06/05/2024
3.	Area Calculations	0004	B	06/05/2024
4.	SEPP 65 Diagrams	0005	B	06/05/2024
5.	Site Plan	0100	B	06/05/2024
6.	Site Plan Analysis	0101	B	06/05/2024
7.	Demolition Plan	0200	B	06/05/2024
8.	Ground Floor Plan	1100	B	06/05/2024
9.	First Floor Plan	1101	B	06/05/2024
10.	Second Floor Plan	1102	B	06/05/2024
11.	Roof Plan	1103	B	06/05/2024
12.	Elevations 01	2000	B	06/05/2024
13.	Elevations 02	2001	B	06/05/2024
14.	Sections 01	3000	B	06/05/2024
15.	Sections 02	3001	B	06/05/2024
16.	Shadow Diagrams	9100	B	06/05/2024
17.	Eye Of the Sun Diagrams	9101	B	06/05/2024
18.	External Finishes Schedule	9300	B	06/05/2024
19.	Notification Plans Covert Page	P5-N01	B	06/05/2024
20.	Notification Plans Site / Landscape	P5-N02	B	06/05/2024
21.	Notification Plans Development Data	P5-N03	B	06/05/2024
22.	Notification Plans Elevations	P5-N04	B	06/05/2024
23.	Notification Plans Schedule of finishes	P5-N05	B	06/05/2024
24.	Notification Plans – Shadow Diagrams	P5-N06	B	06/05/2024

APPENDIX B – TYPE A CONSTRUCTION REQUIREMENTS

The following are the fire rating requirements for the new building.

Table S5C11a: Type A construction: FRL of loadbearing parts of external walls

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy/ Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3 m	90/60/60	120/90/90	180/180/120	240/240/180
3 m or more	90/60/30	120/60/30	180/120/90	240/180/90

Table S5C11b: Type A construction: FRL of non-loadbearing parts of external walls

Distance from a *fire-source feature*	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Less than 1.5 m	–/90/90	–/120/120	–/180/180	–/240/240
1.5 to less than 3 m	–/60/60	–/90/90	–/180/120	–/240/180
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C11c: Type A construction: FRL of external columns not incorporated in an external wall

Column type	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing	90/–/–	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/–/–	–/–/–	–/–/–	–/–/–

Table S5C11d: Type A construction: FRL of common walls and fire walls

Wall type	FRL (in minutes): *Structural adequacy / Integrity / Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Loadbearing or non-*loadbearing*	90/90/90	120/120/120	180/180/180	240/240/240

Table S5C11e: Type A construction: FRL of loadbearing internal walls

Location	FRL (in minutes): *Structural adequacy* / *Integrity* / *Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair *shafts*	90/90/90	120/120/120	180/120/120	240/120/120
Bounding *public corridors*, public lobbies and the like	90/90/90	120/–/–	180/–/–	240/–/–
Between or bounding *sole-occupancy units*	90/90/90	120/–/–	180/–/–	240/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion	90/90/90	120/90/90	180/120/120	240/120/120

Table S5C11f: Type A construction: FRL of non-loadbearing internal walls

Location	FRL (in minutes): *Structural adequacy* / *Integrity* / *Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Fire-resisting lift and stair *shafts*	–/90/90	–/120/120	–120/120	–/120/120
Bounding *public corridors*, public lobbies and the like	–/60/60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*	–/60/60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion	–/90/90	–/90/90	–/120/120	–/120/120

Table S5C11g: Type A construction: FRL of other building elements not covered by Tables S5C11a to S5C11f

Building element	FRL (in minutes): *Structural adequacy* / *Integrity* / *Insulation*			
	Class 2, 3 or 4 part	Class 5, 7a or 9	Class 6	Class 7b or 8
Other *loadbearing* internal walls, internal beams, trusses and columns	90/–/–	120/–/–	180/–/–	240/–/–
Floors	90/90/90	120/120/120	180/180/180	240/240/240
Roofs	90/60/30	120/60/30	180/60/30	240/90/60